UNITED STATES DISTRICT COURT

DISTRICT OF MASSACHUSETTS

AMGEN INC.,

Plaintiff,

vs. ) Civil Action

F. HOFFMANN-LA ROCHE LTD., a Swiss ) No. 05-12237 WGY
Company, ROCHE DIAGNOSTICS GmbH,
a German Company, and HOFFMANN-LA
ROCHE, INC., a New Jersey
Corporation

Defendants.

30(b)(6) Deposition of GRAHAM MOLINEUX,
at 1999 Avenue of the Stars, 17th Floor,
Los Angeles, California 90067, commencing
at 9:06 A.M., Wednesday, March 28, 2007,
before Judith Schlussel, CSR No. 4307.

- CONFIDENTIAL -

Emery, representing Plaintiff Amgen, Inc.

MS. MORLEY: Kimberlin Morley, Amgen.

THE VIDEOGRAPHER: Thank you. Will the court reporter please swear in the witness.

GRAHAM MOLINEUX,

the witness, having been administered an oath in accordance with CCP Section 2094, testified as follows:

THE WITNESS: Yes, I do.

EXAMINATION

BY MR. JAGOE:

Q. Can you please state your full name for the record, again.

A. My name is Graham Molineux.

Q. What is your current home address?

A. 6394 Gabbert Road, Moorpark, California, 93021.

Q. Where do you work, Dr. Molineux?

A. I work for Amgen, Inc.

Q. How long have you worked for Amgen, Inc.?

A. 13 years.

Q. Where did you work prior to Amgen?

A. The Patterson Institute for Cancer Research.

Q. Have you worked continuously for Amgen for the past 13 years?

A. Yes, I have.

Q. What is your current position at Amgen?

A. I'm executive director of research.

Q. And as executive director of research, what are your responsibilities?

THE VIDEOGRAPHER: Excuse me, Counsel. Blackberries, I'm sorry, are turned on.

THE WITNESS: My responsibilities are to manage a group of scientists involved in discovery level -- drug discovery at Amgen.

Q. BY MR. JAGOE: Are you responsible for all scientists at Amgen?

A. No. I'm responsible for a group of 12 scientists.

Q. How many executive directors of research are there at Amgen currently?

A. I don't know.

Q. Is there more than one?

A. Yes.

Q. And the 12 scientists that you're responsible for, can you name them?

MR. GAEDE: Objection; incomplete hypothetical. Calls for speculation.

THE WITNESS: I think if I were to understand the MOA properly, I would need a specimen, yes.

Q. BY MR. JAGOE: Do you know of any efforts ongoing at Amgen to engage in a science-based challenge to Roche's hypothesis?

A. No.

Q. I marked another document as Molineux Exhibit 3 that I'm handing you. Is the document that I marked as Molineux Exhibit 3 a document that you authored as an Amgen employee?

A. Yes, it is.

Q. You published this in 2002?

A. Yes, I did.

Q. Did this undergo the internal review at Amgen prior to publication?

A. Yes, it did.

Q. And were you trying to be accurate and honest when you wrote this publication?

A. I was attempting to be accurate and honest, yes.

Q. And what was the purpose of making this publication?

A. To offer insight into the improvements which can be offered to a number of therapeutics by pegylation.

Q. And the potential benefits of pegylation are listed in Table 1 of this publication?

MR. GAEDE: Again, you may answer this generically with respect to also with PEG-EPO. Specifically, though, if there is any questions that go into the other molecules or other proteins consistent with the Court's order, that would be an improper scope. The question -- I understand this is in relation to your questions about PEG-EPO.

THE WITNESS: Table 1 lists the generic attributes that can be conferred by pegylation.

Q. BY MR. JAGOE: In the introduction on Page 1, you said that "A number of novel drug-delivery mechanisms have been developed to increase the utility of drugs that are otherwise limited by suboptimal pharmacokinetic properties, such as poor absorption, distribution and elimination. These include continuous-release injectable and liposomal systems which alter the formation of the drug and pegylation which alters the drug molecule." Did I read that correctly?

A. I think you did, yes.

Q. And when you wrote this article in 2002, you believed that to be true?

A. I think it was probably written the year before.

Q. In 2001?

A. Perhaps. I don't remember the exact publication date of this article.

Q. But at the time you wrote that, you believed it to be true?

A. Yes, I did.

Q. That was prior to the beginning of the lawsuit against Roche?

A. Yes, it would have been.

Q. Are you aware of anything in this article that is not true or accurate?

A. It's a long time since I read this, but at the time I believed it to be true and accurate, yes.

Q. I'm going to hand you another document which I've marked as Molineux Exhibit 4.

A. Thank you.

Q. Is Molineux Exhibit 4 a publication that you made as an Amgen employee?

A. Yes, it is.

Q. And what was the purpose of this publication?

MR. GAEDE: Again, if you're going to be discussing this publication, the context of PEG Epoetin, that's okay, but looking at the face of this, it really goes to PEG GCSF which is clearly another compound and, therefore, as the Court's order of January 3rd, 2007 states, quote, "the case involves EPO including pegylated EPO, not other pegylated compounds." So if you're going to question him with respect to this article on what is clearly another pegylated compound, that is beyond the scope of the Court's order and I will have to instruct the witness not to answer.

MR. JAGOE: Can you read back the last question.

(Question Read)

MR. GAEDE: You may answer the question, Mr. Molineux, Dr. Molineux at a very high level, but as I note, again, the topic of this seems to be other pegylated compounds. So to the extent this line of questioning continues, I will instruct the witness not to answer.

THE WITNESS: The intention was to inform the scientific community of advances we had made in pegylation technology.

Q. BY MR. JAGOE: Is that pegylation

technology in general or pegylation technology related to a specific protein?

A. This particular piece refers to the general case but with a specific case of GCSF.

Q. I want you to look at Page 4S, which is the second page of the text. The first full paragraph in the first column, it says "pegylating a therapeutic agent may increase the hydrodynamic size above the limit of kidney filtration extending the drug's circulating half-life and increasing the patient's exposure to the drug from a single administration, thus simplifying treatment of chronic disease." Did you write that statement?

A. Yes, I did.

Q. Did you believe it to be accurate when you wrote it?

A. Yes, I did.

Q. Did this publication undergo the internal Amgen review before it was published?

A. Yes, it did.

Q. This was made prior to the onset of the current lawsuit, correct?

A. Yes, it was.

Q. The next paragraph, it says "Hydrated PEG chains are highly mobile in an aqueous medium

shielding antigenic determinants on the antigenic --" sorry -- "determinants on the conjugated proteins from detection by immune cells. Pegylation can also protect proteins by preventing the approach of proteolytic enzymes by processes that involve steric hindrance and/or the site specific covalent attachment of PEG to lysine which hinders trypsin cleavage." Did I read that correctly?

A. Yes, I think you did.

Q. Did you believe that to be accurate at the time you published this paper?

MR. GAEDE: I'm going to lodge an objection here that if one goes to the two footnotes that are referred to in that sentence, they refer specifically to pegylated interferons as well as apparently pegylated proteins which is by Delgado, Francis and Fisher from 1992, and I'm unaware of that source making reference specifically to PEG erythropoietin, so therefore your question is outside the scope of the Court's order in that you are asking about other pegylated compounds and instruct the witness not to answer.

Q. In the next sentence, it says "Compared with their non-pegylated counterparts, other

potential benefits of pegylated biomolecules are greater biological activity, greater passive tumor targeting of liposomes, longer circulating half-life, lower peak plasma concentrations, smaller fluctuations in plasma concentrations, less enzymatic degradation, less immnogenicity and antigenicity, less toxicity, greater solubility, less frequent administration, greater patient adherence and improved quality of life." Did you write that statement?

MR. GAEDE: Again, if you look at footnotes 6 through 10 that are right there on that statement, all of those references do not reference PEG erythropoietin and therefore the question is --

MR. JAGOE: Just instruct him not to answer and we'll save time. We don't need your testimony about what the references say.

MR. GAEDE: No. You're outside of a court order.

MR. JAGOE: Tell him not to answer. Don't read what you think those references say.

MR. GAEDE: I'm just looking to the references. You're reading a sentence, you're omitting the references, and the references on their face refer to other pegylated compounds which the

court order clearly says are not an issue in this case.

MR. JAGOE: All you have to do is instruct him not to answer and he won't answer.

MR. GAEDE: I'm trying to see if we can work with you here but you insist on violating the court order. I'm trying to see if there is a way I can do this to allow you to ask questions that you cannot properly frame because you insist on violating the order. If you let me look at the question, I'll make my objection and then he will answer.

You may answer the question, did you write that statement.

THE WITNESS: I wrote that statement.

Q. BY MR. JAGOE: Did you believe it to be accurate at the time you wrote it?

A. Is that a second question I can answer?

MR. GAEDE: You may answer the question, although we should recognize that he is omitting his references to the footnotes which make reference to other pegylated compounds and he is omitting that fact from the record intentionally.

THE WITNESS: I believe it to be accurate when I wrote it.

Q. BY MR. JAGOE: On the next page, there is a bottom first column, last paragraph, "The pharmacokinetic profile of proteins can be improved by attaching one linear or branched PEG at a single site or several small PEG chains at several sites."

A. I'm sorry. Where are you?

Q. Page 5S, column one, last paragraph. Did you write that statement?

A. Yes, I did.

Q. Since your counsel wants to put the footnote into the record, you reference, Reference 15. Whose paper is reference 15?

A. That would appear to be the paper by Bailon and Berthold.

Q. Are you familiar with that paper?

A. I was at the time but I don't recall its contents now.

Q. Did you believe it to be a reputable paper at the time you cited it?

A. Yes, I did.

Q. Now, on the Page 7S, top of the page, in the middle of the paragraph, there is a sentence, "Conjugation methods must be optimized for each protein." Did you write that statement?

MR. GAEDE: I'm sorry. Where are you?

MR. JAGOE: 7S, column one, first paragraph in the middle.

MR. GAEDE: Thank you. You didn't identify where it was on all that text.

MR. JAGOE: Sorry.

THE WITNESS: The question? I'm sorry.

Q. BY MR. JAGOE: Did you write that?

A. Yes, I did.

Q. What did you mean by that?

A. I meant that for each protein, since this technology can be applied to many proteins, the specific protein PEG conjugation be considered in how to make it on a case-by-case basis.

Q. Why would you have to consider it on a case-by-case basis?

MR. GAEDE: Again, objection; calls for speculation. Calls for expert witness testimony. I assume your question is with respect to PEG-EPO?

MR. JAGOE: With respect to this sentence you wrote in your article.

THE WITNESS: Different proteins may be sensitive to pegylation at different sites.

Q. BY MR. JAGOE: So if you pegylated one site, you may get a good compound and if you pegylated another site, you may not get a good

compound?

MR. GAEDE: Objection; mischaracterizes the witness' testimony. Now we're clearly into other compounds which is beyond the scope of the Court's order. Instruct the witness not to answer.

Q. BY MR. JAGOE: I marked another document as Molineux Exhibit 5. Is Molineux Exhibit 5 a paper that you wrote as an Amgen employee?

A. Yes, it is.

Q. You published this in 2003?

A. It would appear so, yes.

Q. And you published it prior to the onset of the current lawsuit?

A. Yes.

Q. And you believed the contents of this article to be accurate when you wrote them?

A. Yes, I did.

Q. They are an honest reflection of your view of the art?

MR. GAEDE: Objection; vague and ambiguous. Calls for speculation. Mischaracterizes the document, and this document specifically relates to Pegfilgrastim which is another compound. You may answer that question if you can. Other than that, we're into a question about Pegfilgrastim and we're

not going there.

THE WITNESS: This paper represents my views at that time, yes.

Q. BY MR. JAGOE: And on the first page in the second column, there is a heading Pegylation Technology. What did you mean to discuss under that heading?

A. I intended to discuss the different ways in which PEG can be attached to protein molecules.

Q. What are the different ways PEG can be attached to protein molecules?

MR. GAEDE: Again, I understand this line of questioning to be in the context of your staying within the Court's order with respect to PEG Epoetin. If that understanding is incorrect and you intend this question to be with respect to other compounds, you are outside the Court's order. Could you please clarify.

MR. JAGOE: I think it relates to PEG Epoetin as well.

MR. GAEDE: Then that's fine.

THE WITNESS: In this part of the paper, I made no reference to PEG Epoetin. I'm not clear what it is you want me to say.

Q. BY MR. JAGOE: I want to know if the PEG

technology that you're talking about -- I want to know what are the specific PEG technologies you're referring to in this section of your paper?

A. I see. So the technologies I was referring to are different types of PEG, different sizes, complexities, different sites of attachment and different chemistries used for attachment.

Q. Depending on which of those variables one chooses, you would affect whether or not you're going to get a safe and efficacious drug at the end, right?

MR. GAEDE: Objection. Instruct the witness not to answer. That's clearly outside of the scope of the Court's order. It's also vague and ambiguous, improper expert witness testimony. Incomplete hypothetical. Instruct not to answer.

Q. BY MR. JAGOE: In the next section, it says "molecular properties of pegylated proteins." Are you with me?

A. Yeah.

Q. It says "The physiochemical properties of pegylated proteins generally differ from those of the parent molecule. Pegylation may induce changes in conformation, electrostatic binding properties and hydrophobicity resulting in steric interference