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1 IN THE UNITED STATES DISTRICT COURT  
2 IN AND FOR THE DISTRICT OF DELAWARE  
3 - - -  
4 PFIZER INC. and UCB PHARMA GMBH, ) Civil Action  
5 Plaintiffs, )  
6 v. )  
7 ALKEM LABORATORIES LTD., et al., )  
8 Defendants. ) NO. 13-1110 (GMS)  
CONSOLIDATED  
9 - - -  
10 Wilmington, Delaware  
11 Monday, July 13, 2015  
12 9:00 a.m.  
13 Day 1 of Trial  
14 - - -  
15 BEFORE: HONORABLE GREGORY M. SLEET, U.S.D.C.J.  
16 APPEARANCES:  
17 JACK B. BLUMENFELD, ESQ.  
18 Morris Nichols Arsht & Tunnell LLP  
19 -and-  
20 JAMES S. TRAINOR, JR., ESQ.,  
21 JEFFREY J. OELKE, ESQ.,  
22 ROBERT E. COUNIHAN, ESQ.,  
23 RYAN JOHNSON, ESQ., and  
24 LAURA MORAN, ESQ.  
25 White & Case LLP  
(New York, NY)  
Counsel for Plaintiffs

09:00:31 1 THE COURT: Good morning. Please, take your  
09:00:34 2 seats. We are going to have to be here -- I am not sure  
09:00:47 3 exactly how long, actually. I know some work is being done  
09:00:50 4 on the audiovisual system in my courtroom, which is has  
09:00:55 5 really plaguing us of late. Fortunately, Judge Robinson is  
09:01:00 6 on vacation. I am going to have to get used to this very  
09:01:03 7 different configuration that her predecessor and mine, Rod  
09:01:09 8 McKelvie, decided to build. He is gone now, so I can't say  
09:01:12 9 too much about him.  
09:01:14 10 Let's start out with introductions. Mr.  
09:01:16 11 Blumenfeld.  
09:01:17 12 MR. BLUMENFELD: Good morning, Your Honor.  
09:01:21 13 Jack Blumenfeld from Morris Nichols for the  
09:01:23 14 plaintiffs' Pfizer and UCB. Can you hear?  
09:01:27 15 THE COURT: This is strange. Can the folks in  
09:01:33 16 the well of the court hear?  
09:01:36 17 MR. BLUMENFELD: I will speak up and get a  
09:01:39 18 little closer to the mike. I guess we will all try to do  
09:01:41 19 that.  
09:01:42 20 At counsel table from White & Case are Jeff  
09:01:46 21 Oelke, Jim Trainor, and behind them are Robert Counihan and  
09:01:52 22 Lauren Moran.  
09:01:53 23 (Counsel respond "Good morning.")  
09:01:54 24 MR. BLUMENFELD: Also from White & Case.  
09:01:56 25 In the first row, Stephane Drouin, Jurgen Hassa

1 APPEARANCES CONTINUED:  
2 KELLY E. FARNAN, ESQ.  
3 Richards, Layton & Finger, P.A.  
4 -and-  
5 RACHEL K. HUNNICUTT, ESQ., and  
6 NEAL SETH, ESQ.  
7 Wiley Rein LLP  
8 (New York, NY)  
9 Counsel for Defendant  
10 Alkem Laboratories Ltd.  
11 ADAM W. POFF, ESQ., and  
12 PILAR KRAMAN, ESQ.  
13 Young Conaway Stargatt & Taylor LLP  
14 -and-  
15 KRISTEN VINK VENEGAS, ESQ., and  
16 SHON LO, ESQ.  
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20 KELLY E. FARNAN, ESQ., and  
21 CHRISTINE HAYNES, ESQ.  
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24 MICHAEL R. DZWONCZYK, ESQ.,  
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Healthcare Inc., USA and  
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Inc.  
J. CLAYTON ATHEY, ESQ.  
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-and-  
WILLIAM D. HARE, ESQ., and  
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Amerigen Pharmaceuticals, Inc.  
and Amerigen Pharmaceuticals Ltd

09:02:02 1 from UCB. And in the second row Chase Romick, who is here  
09:02:07 2 from Pfizer.  
09:02:07 3 THE COURT: Good morning.  
09:02:09 4 Ms. Farnan.  
09:02:10 5 MS. FARNAN: I will start, Your Honor. Good  
09:02:11 6 morning. Kelly Farnan from Richards Layton Finger. I am  
09:02:13 7 representing Accord and Amneal and Alkem. I also have with  
09:02:18 8 me my colleague from my office Christine Hayes.  
09:02:20 9 THE COURT: Good morning.  
09:02:21 10 MS. FARNAN: Then on behalf of Accord and Amneal  
09:02:23 11 I am working with Sughrue Mion, we have Mike Dzwonczyk,  
09:02:27 12 Renita Rathinham, and Alton Hare is in the back.  
09:02:33 13 Also here on behalf of Amneal from the company  
09:02:36 14 in the back as well, Ken Cappel, Brian Sommese, and Lars  
09:02:36 15 Tavolla.  
09:02:44 16 THE COURT: Good morning.  
09:02:45 17 MS. FARNAN: I also represent Alkem, Your Honor.  
09:02:47 18 And I am working with Wiley Rein. At counsel table is  
09:02:51 19 Rachel Hunnicutt and Neal Seth.  
09:02:53 20 THE COURT: Good morning, counsel.  
09:02:55 21 MS. FARNAN: Thank you, Your Honor.  
09:02:56 22 THE COURT: Mr. Poff?  
09:02:58 23 MR. POFF: Good morning, Your Honor. Adam Poff  
09:03:00 24 from Young Conaway on behalf of Sandoz. Working with me is



09:03:06 **1** And from my office, Pilar Kraman.  
 09:03:08 **2** THE COURT: Good morning.  
 09:03:10 **3** All right. Counsel.  
 09:03:14 **4** MR. ATHEY: Good morning, Your Honor. Clayton  
 09:03:18 **5** Athey from Prickett, Jones & Elliott from the Amerigen  
 09:03:21 **6** defendants. With me today are William Hale and Gabriela  
 09:03:27 **7** Materassi. Also from Amerigen, Jonathan Nichol.  
 09:03:31 **8** THE COURT: Good morning.  
 09:03:33 **9** I think that's it. Right?  
 09:03:36 **10** Counsel, are there any housekeeping matters we  
 09:03:40 **11** need to talk about before we begin?  
 09:03:43 **12** MR. OELKE: I don't believe so, Your Honor.  
 09:03:47 **13** MR. DZWONCZYK: Not from defendants, Your Honor.  
 09:03:49 **14** THE COURT: Let's start with the opening  
 09:03:51 **15** statements then.  
 09:03:56 **16** MR. OELKE: Your Honor, I have some slides.  
 09:03:59 **17** THE COURT: Mr. Buckson will take those from  
 09:03:59 **18** you.  
 09:04:01 **19** I am going to ask you to see what you can do  
 09:04:04 **20** about keeping as close to the mike as you can without being  
 09:04:07 **21** uncomfortable so that everyone can hear.  
 09:04:24 **22** MR. OELKE: Good morning, Your Honor.  
 09:04:28 **23** Your Honor, the invention in this case arose  
 09:04:34 **24** amid an active field of pharmaceutical research. And that  
 09:04:37 **25** was an active field to look for a better treatment for

09:04:42 **1** urinary incontinence, a condition that is also going to be  
 09:04:47 **2** referred to in this case as overactive bladder or OAB.  
 09:04:51 **3** In the late 1990s, a number of different  
 09:04:54 **4** research organizations were looking into developing a better  
 09:04:58 **5** drug to treat this condition. But the invention here  
 09:05:01 **6** occurred because a group at a small German pharmaceutical  
 09:05:05 **7** company, Schwarz Pharma, took a different path. They  
 09:05:11 **8** started in 1997. And they tried to develop an OAB drug  
 09:05:16 **9** taking a different path than all these other research  
 09:05:20 **10** groups.  
 09:05:20 **11** To orient the plaintiffs in this case, Your  
 09:05:22 **12** Honor, in 2006, Pfizer entered into an agreement with  
 09:05:27 **13** Schwarz concerning the compound that came out of this  
 09:05:30 **14** research. That is fesoterodine. So they are one of the  
 09:05:33 **15** plaintiffs. And then UCB later acquired Schwarz in 2007.  
 09:05:38 **16** So they are the other plaintiff.  
 09:05:41 **17** Now, the work of the Schwarz scientists resulted  
 09:05:44 **18** in five patents that are at issue here. We have them up on  
 09:05:49 **19** the screen. There is 12 asserted claims from these patents.  
 09:05:52 **20** Four of the patents are related. We refer to  
 09:05:55 **21** them as the compound patents. They have a priority date of  
 09:05:58 **22** May 12th, 1998. They all concern compounds and methods of  
 09:06:05 **23** treatment administering those compounds. And the asserted  
 09:06:08 **24** claims all concern fesoterodine, the drug at issue.

09:06:15 **1** or the '650 patent. It has a priority date of November 16,  
 09:06:19 **2** 1999. And that patent concerns specific salt forms of  
 09:06:25 **3** compounds, and the asserted claims concern specific salt  
 09:06:28 **4** forms of fesoterodine, which we will talk about, and a  
 09:06:31 **5** method of using, of administering those salt forms.  
 09:06:35 **6** Now, some of these claims do encompass more than  
 09:06:41 **7** just fesoterodine. The issue here will be about this  
 09:06:46 **8** compound, fesoterodine, which is on the screen, Your Honor.  
 09:06:51 **9** Fesoterodine, that is the structure of the  
 09:06:54 **10** compound with the salt, the fumarate salt. We have  
 09:06:57 **11** highlighted a few things here just to give a short preview  
 09:07:02 **12** of the portions of the compound we are going to be talking  
 09:07:05 **13** about in the case.  
 09:07:08 **14** You see the ester group there circled in blue,  
 09:07:10 **15** or at least it's blue on my slide. I am not sure if it's  
 09:07:14 **16** blue for you, Your Honor. That ester group is one location  
 09:07:18 **17** on the ring for potential substitution. The alcohol group  
 09:07:23 **18** is another location on the ring for another possibility for  
 09:07:28 **19** substitution, which we will be talking about more during the  
 09:07:30 **20** trial. Finally, in yellow is the fumarate, the salt portion  
 09:07:34 **21** of the compound.  
 09:07:37 **22** This compound arose out of that research that  
 09:07:40 **23** the Schwarz scientists conducted. And the result of that  
 09:07:43 **24** compound was it benefited the most difficult-to-treat  
 09:07:48 **25** patients, many of which were failures on the prior art drugs

09:07:54 **1** that we will be talking about.  
 09:07:58 **2** If we could go to the next slide.  
 09:08:01 **3** Now, overactive bladder, Your Honor, it  
 09:08:06 **4** affected, at the time frame, as I said, 1998-1999, it  
 09:08:10 **5** affected over 45 million people in North America alone at  
 09:08:14 **6** that time. Over 500 million worldwide. And it was an  
 09:08:17 **7** underserved population. A lot of people were not getting  
 09:08:20 **8** treatment for it.  
 09:08:22 **9** There were severe consequences for some of these  
 09:08:24 **10** people. I mean, consequences of anxiety, depression, shame.  
 09:08:29 **11** I mean, these were real issues for some of these patients.  
 09:08:32 **12** So some of the coping mechanisms, the  
 09:08:35 **13** traditional coping mechanisms, a lot of people wore diapers.  
 09:08:38 **14** Other people did toilet mapping, which basically meant  
 09:08:41 **15** before they left their house they mapped out every place  
 09:08:44 **16** they were going to stop along the way to their destination.  
 09:08:48 **17** Some just never left their house. It got to that point for  
 09:08:51 **18** some of these patients.  
 09:08:53 **19** In this time frame, there were some drug  
 09:08:56 **20** options. These drug options were all what were called  
 09:09:01 **21** antimuscarinics. These antimuscarinics all work on  
 09:09:05 **22** muscarinic receptors that reside in the bladder. So here  
 09:09:08 **23** are three of the drugs that existed at that time in 1998.  
 09:09:13 **24** The problem with a muscarinic receptor is it's

09:09:20 **1** in the brain. It's also in the salivary glands.

09:09:24 **2** So these drugs all had deficiencies with each of

09:09:29 **3** them.

09:09:29 **4** Oxybutynin, for instance, had a severe dry mouth

09:09:34 **5** problem. Most people that took oxybutynin, up to 70 percent

09:09:38 **6** of people that took it had a dry mouth issue. In some it

09:09:42 **7** was so severe they couldn't take the drug. They had to go

09:09:45 **8** off of it.

09:09:46 **9** Propantheline was another antimuscarinic. It

09:09:51 **10** had a wide variety of absorption. Some patients needed a

09:09:54 **11** huge amount. Some patients didn't need as much. And

09:09:56 **12** doctors really didn't know how to dose it.

09:10:00 **13** Tolterodine was the new drug on the market. In

09:10:03 **14** March of 1998, tolterodine was introduced. And the trade

09:10:07 **15** name for that was Detrol. That drug came on the market in

09:10:11 **16** 1998. And it solved some of these issues. But it had a

09:10:15 **17** problem with it as well. That was a dose ceiling. You

09:10:19 **18** could only give four milligrams a day of tolterodine. The

09:10:21 **19** reason for that was because of a condition called urinary

09:10:26 **20** retention. Basically, in some patients, if you went above

09:10:29 **21** four milligrams a day, it froze their bladder. So then they

09:10:33 **22** couldn't urinate at all. And that is called a backup. That

09:10:37 **23** wasn't just an uncomfortable side effect, that could be a

09:10:40 **24** serious side effect. It could actually lead to kidney

09:10:42 **25** failure.

09:10:43 **1** So doctors just would not go above that ceiling

09:10:45 **2** of four milligrams a day with tolterodine.

09:10:48 **3** These were the options that existed.

09:10:50 **4** So there were a large number of research groups

09:10:53 **5** that were looking at OAB drugs at this time knowing there

09:10:57 **6** might be a better solution.

09:10:59 **7** Here are some of the targets that they were

09:11:01 **8** looking at. Of course, a number of them were looking at the

09:11:04 **9** muscarinic receptors and trying to find out whether they

09:11:07 **10** could make a selective antimuscarinic compound, one that

09:11:13 **11** would work on the bladder and not work on the other areas of

09:11:15 **12** the body to the same extent.

09:11:18 **13** Others were looking at other pathways in the

09:11:21 **14** bladder. There are other receptors that act on the bladder.

09:11:24 **15** So they were looking at calcium channels, potassium

09:11:28 **16** channels, adrenergic receptors. All of these were

09:11:32 **17** possibilities.

09:11:34 **18** Here you can see, all of these companies on the

09:11:37 **19** left were looking at ways to make a novel, active compound

09:11:45 **20** that would work on OAB.

09:11:48 **21** Looking at all of these different possibilities,

09:11:50 **22** some were looking at muscarinic receptors. Some were

09:11:53 **23** looking at other pathways.

09:11:55 **24** What the scientists at Schwarz did was

09:12:01 **1** to work on the same compounds as these other companies.

09:12:05 **2** They worked on tolterodine. They started with tolterodine.

09:12:08 **3** One of the inventors of fesoterodine that came to work with

09:12:13 **4** Schwarz had been an inventor on tolterodine. And they

09:12:17 **5** started with tolterodine, and then they decided, well, let's

09:12:21 **6** focus on the metabolite of tolterodine. Then, not only

09:12:24 **7** that, they decided, let's make a prodrug.

09:12:27 **8** A prodrug, no one had made a prodrug in this

09:12:30 **9** area. No one had made a prodrug with antimuscarinic. And

09:12:35 **10** no one had made a drug with an OAB drug at that point. So

09:12:38 **11** they were working on a blank slate in this area. No one had

09:12:41 **12** made an antimuscarinic prodrug.

09:12:43 **13** Just to give you a concept quickly, Your Honor,

09:12:45 **14** of what a prodrug is, this is kind of our crude

09:12:50 **15** representation of how it works. The idea is that if you

09:12:52 **16** have an existing drug and it has a problem associated with

09:12:55 **17** it, for instance, you can't get it through a membrane. If

09:13:00 **18** you have an oral dosage form, it can't get through the gut

09:13:03 **19** wall. So it just passes through the body. You see here, it

09:13:07 **20** just can't make it through the gut wall.

09:13:10 **21** So the possibility with a prodrug is, ideally,

09:13:12 **22** if it would work, is that it would deliver that drug across

09:13:17 **23** the gut wall, and then when it gets to the intended site of

09:13:22 **24** action, an enzyme cleaves off the prodrug group, leaving the

09:13:27 **25** intended drug at the appropriate site.

09:13:30 **1** But there is a reason no one was looking at

09:13:33 **2** prodrugs at that time, because prodrugs are a very difficult

09:13:38 **3** set of compounds to try to develop because you are

09:13:41 **4** essentially trying to thread a series of needles to get a

09:13:45 **5** prodrug to work. We see here, you have to balance stability

09:13:51 **6** and volatility at the same time. You want it to be stable

09:13:55 **7** like any drug when it's being stored and manufactured, and

09:13:59 **8** you want it to be stable when it's going through the GI

09:14:03 **9** tract. But once it gets to the intended location, you want

09:14:06 **10** it to be volatile. You want it to convert to the drug.

09:14:11 **11** It has to have an appropriate balance of

09:14:13 **12** absorption and solubility. Those two things are the

09:14:17 **13** intention, but it has to meet both of those. It has to be

09:14:21 **14** water-soluble if it is an oral dosage form but yet it has to

09:14:24 **15** be able to penetrate the stomach wall.

09:14:26 **16** Finally, it has to be nontoxic, like any drug,

09:14:29 **17** and yet not nontoxic to just the one drug, it has to be

09:14:33 **18** nontoxic as to the prodrug and to the portion that cleaves

09:14:36 **19** off.

09:14:37 **20** So there is multiple components that you have to

09:14:39 **21** worry about with toxicity.

09:14:33 **22** Now, this is understood, there are treatises

09:14:36 **23** and there has been court decisions that talk about how

09:14:40 **24** prodrugs are disfavored and how they are an option of last

09:14:46 **1** the grain when they decided let's try to make a prodrug in  
 09:14:49 **2** this field. No one had ever done it before.  
 09:14:51 **3** Now, the issue of obviousness, where we're going  
 09:14:56 **4** to start, there are four issues, Your Honor, that remain in  
 09:15:01 **5** the case: obviousness, anticipation, indefiniteness I  
 09:15:07 **6** believe, and then one small issue of infringement as to  
 09:15:10 **7** Sandoz on two of the 12 claims. But obviousness is the  
 09:15:13 **8** issue that touches on all of the claims. I'm going to spend  
 09:15:18 **9** my time speaking about that issue first.  
 09:15:21 **10** The issue of obviousness is addressed from the  
 09:15:26 **11** person from the standpoint of a person of ordinary skill  
 09:15:29 **12** and what that person of ordinary skill would have been  
 09:15:33 **13** confronted with at this point in 1998, a series of  
 09:15:39 **14** questions. And these series of questions all have to be  
 09:15:42 **15** answered in a particular way in the defendants' favor for  
 09:15:44 **16** them to carry their prima facie burden.  
 09:15:48 **17** Now, the first question is what is the classic  
 09:15:53 **18** compound you are going to look at. As we saw, there are  
 09:15:55 **19** more than just antimuscarinics that were possibilities. The  
 09:15:56 **20** defendants say you just focus on antimuscarinics.  
 09:16:00 **21** But even if a person of ordinary skill decides,  
 09:16:02 **22** okay, well, I'll focus on antimuscarinics, you go to the  
 09:16:06 **23** next step. You go to the second step. And there you have a  
 09:16:14 **24** number of possibilities. These are all compounds that were  
 09:16:16 **25** either, that were either antimuscarinics or in development

09:16:21 **1** or some companies were looking at it and Dr. Maag, who was a  
 09:16:27 **2** prodrug specialist and a medicinal chemist who worked at  
 09:16:32 **3** Roche at this time will testify about these possibilities.  
 09:16:33 **4** He was working in the field at the time.  
 09:16:35 **5** The defendants will say you focused on  
 09:16:38 **6** tolterodine because it was the hot new drug that had just  
 09:16:42 **7** come out. But these were all possibilities here.  
 09:16:45 **8** And once defendants say, well, lets focus on  
 09:16:49 **9** tolterodine, then they actually want you to switch. They  
 09:16:53 **10** want to say, well, follow what the inventors did and look  
 09:16:56 **11** over at the metabolite. But there is reasons why you  
 09:17:00 **12** wouldn't look at that metabolite, and the metabolite is  
 09:17:03 **13** 5-HMT, just so when you see that name, that is referring to  
 09:17:07 **14** the metabolite. That's the compound we have up there.  
 09:17:10 **15** Now, 5-HMT would not have been an attractive  
 09:17:16 **16** lead compound for a number of reasons. One, it has never  
 09:17:19 **17** been studied as a drug. It had only been studied as a  
 09:17:23 **18** metabolite. It was a metabolite of tolterodine, but no one  
 09:17:27 **19** had ever dosed it as a drug. So there was no experience  
 09:17:30 **20** with the compound as a drug, only as a metabolite.  
 09:17:34 **21** There was no expected differentiation from  
 09:17:36 **22** tolterodine because the two compounds both work on the  
 09:17:40 **23** bladder which we'll discuss.  
 09:17:41 **24** It had never been orally administered.

09:17:49 **1** on 5-HMT, but the defendants will give two reasons why you  
 09:17:52 **2** would switch. You would look at tolterodine first and once  
 09:17:55 **3** you are looking at tolterodine, then you would look over to  
 09:17:58 **4** the metabolite.  
 09:17:58 **5** They'll say, well, variability of metabolism was  
 09:18:01 **6** an issue with tolterodine.  
 09:18:03 **7** There were two groups of patients, Your Honor.  
 09:18:08 **8** One would be extensive metabolizers and the other would be  
 09:18:12 **9** poor metabolizers. The reason for this is the enzyme in the  
 09:18:16 **10** body that works on tolterodine to convert it into the  
 09:18:20 **11** metabolite, what is called CYP2D6, you will hear that, that  
 09:18:26 **12** enzyme some people just don't have it or they don't have  
 09:18:28 **13** much of it in their body. So those patients don't convert  
 09:18:31 **14** to the metabolite or very little. They're called poor  
 09:18:35 **15** metabolizers.  
 09:18:36 **16** But what the prior art shows is it doesn't  
 09:18:38 **17** matter, because both tolterodine and its metabolite are  
 09:18:42 **18** active at the bladder. And so the label for Detrol actually  
 09:18:47 **19** states the net activity of Detrol tablets is expected to be  
 09:18:51 **20** similar in extensive and poor metabolizers.  
 09:18:54 **21** So there really was not an issue here. When a  
 09:18:57 **22** patient came into the doctor's of office, the doctor didn't  
 09:19:00 **23** try to figure out is the patient a extensive metabolizer or  
 09:19:04 **24** a poor metabolizer because the label said it doesn't make a  
 09:19:07 **25** difference. Both get the same effect.

09:19:09 **1** The second reason they're going to give is  
 09:19:11 **2** they're going to say, well, it's known that 5-HMT, the  
 09:19:14 **3** metabolite, is more potent than tolterodine, but the  
 09:19:19 **4** information they cite to for that is early clinic,  
 09:19:23 **5** pre-clinical work in cats.  
 09:19:25 **6** That did not prove to be the case in humans. In  
 09:19:28 **7** humans, they're equipotent. They have the same potency.  
 09:19:34 **8** You shouldn't focus on the cat data once you have the data  
 09:19:35 **9** in humans.  
 09:19:36 **10** So that basis for focusing on 5-HMT also did not  
 09:19:39 **11** hold up.  
 09:19:40 **12** But, Your Honor, even if you decide to focus on  
 09:19:46 **13** 5-HMT, you have a number of options once you start with that  
 09:19:49 **14** as a lead compound. And that is what we have labeled as No.  
 09:19:52 **15** 3 on this slide.  
 09:19:53 **16** You can make a structural analog of the  
 09:19:56 **17** compound. You can make a structural analog of tolterodine  
 09:20:00 **18** or you could make a formulation. If there really is an  
 09:20:03 **19** issue with 5-HMT, then you can make a formulation.  
 09:20:07 **20** The defendants are going to say the reason you  
 09:20:10 **21** have to alter 5-HMT into a prodrug is because there is an  
 09:20:14 **22** absorption problem of 5-HMT, but this goes back to what I  
 09:20:18 **23** talked about before. No one has ever actually tried dosing  
 09:20:22 **24** 5-HMT as a drug, so we don't even know if there is an

09:20:27 **1** If you did have an absorption problem, you could  
 09:20:30 **2** address it through a formulation or you could address it  
 09:20:32 **3** through making a structural analog. The prodrug would be  
 09:20:37 **4** your last approach. The defendants say that is what you  
 09:20:38 **5** would go to first.  
 09:20:39 **6** Now, if you do go to a prodrug, Your Honor, even  
 09:20:42 **7** then you have the number of options for the types of  
 09:20:45 **8** prodrugs.  
 09:20:45 **9** And we have labeled this as No. 4. You have  
 09:20:48 **10** ethers, you have esters, you have phosphates, carbamates,  
 09:20:52 **11** carbonates. These are all possibilities.  
 09:20:55 **12** Defendants are going to say, well, you only  
 09:20:57 **13** focus on esters. Just try ester prodrugs. They say those  
 09:21:01 **14** are the old prodrugs that have been around since the '60s or  
 09:21:04 **15** '70s so start there.  
 09:21:05 **16** But by 1998, the time of the invention, many of  
 09:21:10 **17** these other types are being used. And one of the reasons is  
 09:21:14 **18** because ester prodrugs have an issue with them. They  
 09:21:18 **19** convert in the stomach in many cases because the enzyme that  
 09:21:23 **20** converts ester prodrugs is in the stomach. So you have an  
 09:21:27 **21** early conversion problem with ester prodrugs in some cases  
 09:21:30 **22** and it would have been a concern for 5-HMT if you decided to  
 09:21:34 **23** make a prodrug of 5-HMT.  
 09:21:36 **24** But even then, Your Honor, if you decide to make  
 09:21:39 **25** an ester prodrug, you still have to decide where am I going

09:21:42 **1** to put that ester?  
 09:21:44 **2** If you look at the structure again that we put  
 09:21:46 **3** up earlier, now this structure we're going to put up is  
 09:21:50 **4** actually 5-HMT, but again it has the two rings and it has  
 09:21:53 **5** the two locations on the ring: the phenolic location which  
 09:21:59 **6** we highlighted in blue, and the benzylic position or the 5  
 09:22:05 **7** position which we highlighted in green. Those are both  
 09:22:06 **8** possibilities of where you could put an ester and, in fact,  
 09:22:10 **9** most of the prior art taught you put an ester in both  
 09:22:13 **10** locations so you would have to consider both locations alone  
 09:22:17 **11** and both locations together.  
 09:22:18 **12** And then you have to consider, well, if I make  
 09:22:21 **13** one ester at one location and a different ester at another  
 09:22:24 **14** location, these are all possibilities.  
 09:22:26 **15** The calculation that Dr. Roush, our medicinal  
 09:22:33 **16** chemist expert has made is that it would be over 7,000  
 09:22:36 **17** possibilities, and that is with a very conservative estimate  
 09:22:40 **18** because it is only going to up six carbons. There are  
 09:22:43 **19** prodrug references showing carbons of more than six which  
 09:22:46 **20** would mean the possibilities are even greater. So these  
 09:22:49 **21** are allocations that are -- both these locations are  
 09:22:52 **22** possibilities for where you would locate an ester.  
 09:22:55 **23** Then you have yet another question. Well, let  
 09:22:58 **24** me back up to the defendants' prior art that they will cite,

09:23:05 **1** If you go to the next slide.  
 09:23:06 **2** They will point to two references, Your Honor,  
 09:23:09 **3** prodrug secondary references; and one is called the Drustrup  
 09:23:14 **4** reference. This reference concerns morphine. It has  
 09:23:16 **5** nothing to do with antimuscarinic or OAB. The structure as  
 09:23:20 **6** you can see is very different. It's a very rigid structure  
 09:23:23 **7** morphine, and, of course, it is not meant for OAB. It's an  
 09:23:27 **8** analgesic.  
 09:23:28 **9** And this reference actually discusses how it's a  
 09:23:31 **10** very slow conversion, which is the last thing you would want  
 09:23:34 **11** if you are making a prodrug of 5-HMT.  
 09:23:37 **12** The only way you would get to Drustrup is if  
 09:23:42 **13** you needed just for focusing on one of the two locations.  
 09:23:45 **14** A person of ordinary skill looking at the  
 09:23:47 **15** problem that was confronting people in the OAB field is not  
 09:23:50 **16** going to look at a morphine reference, Your Honor.  
 09:23:52 **17** If you go to the next slide.  
 09:23:54 **18** Even if you decide where you are going to put  
 09:23:57 **19** that prodrug group, then you have to decide what group am I  
 09:24:02 **20** going to put at that location, or at both locations.  
 09:24:06 **21** And what defendants will say is you would  
 09:24:10 **22** naturally go to the isobutyryl group which is in  
 09:24:16 **23** fesoterodine. That is what we show here as the final  
 09:24:17 **24** compound. But, of course, this is just one of many  
 09:24:20 **25** possibilities, as Dr. Roush will testify.

09:24:25 **1** The defendants will going to point to the Daas  
 09:24:27 **2** reference to say you would focus on the isobutyryl group  
 09:24:31 **3** but, Daas has nothing to do with antimuscarinics, it has  
 09:24:35 **4** nothing to do OAB. It has to do with Parkinson's disease.  
 09:24:39 **5** It is a drug that is used to treat Parkinson's. Again, the  
 09:24:43 **6** structure is very different. It has one OH group.  
 09:24:46 **7** So this compound again, the only reason you  
 09:24:48 **8** would look at it, is if you needed a justification to get to  
 09:24:52 **9** what the inventors did.  
 09:24:54 **10** In the end, Your Honor, if you look at the -- if  
 09:24:58 **11** you go to the next slide, if you look along the path here,  
 09:25:02 **12** this is the path where an inventor would have to consider  
 09:25:05 **13** all of these possibilities and the person of ordinary skill  
 09:25:08 **14** would have to consider all of these possibilities from the  
 09:25:11 **15** beginning.  
 09:25:11 **16** The only way to make your way along this path is  
 09:25:15 **17** to start at the end with the claimed compound and get  
 09:25:18 **18** all the way back to the beginning. But the inventors didn't  
 09:25:21 **19** have the benefit of this roadmap, of this blueprint, and  
 09:25:25 **20** neither would a person of ordinary skill.  
 09:25:27 **21** Now, if you would go to the next slide.  
 09:25:32 **22** As to the '650 patent, it concerns salt forms,  
 09:25:36 **23** and there are a few additional reasons why that patent, why  
 09:25:40 **24** those claims would not be obvious. They argue that the

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