

1 Q. Can you please introduce yourself to the
2 members of the jury?

3 A. I'm Dr. Jeff Walterscheid.

4 Q. How are you employed?

5 A. I'm the assistant chief toxicologist at the
6 Harris County Institute of Forensic Sciences.

7 Q. What is an assistant chief toxicologist?

8 A. I oversee daily operations. I also develop new
9 methods for drugs that come in. I also review casework
10 and submit the final report.

11 Q. Okay. Can you tell the members of the jury
12 about your education?

13 A. I have a bachelor's degree in science, in
14 chemistry, from the University of Texas and a Ph.D. in
15 immunology from M.D. Anderson Cancer Center, and a
16 post-doctoral fellowship from Baylor College of Medicine
17 in cardiovascular medicine.

18 Q. How long have you been employed at the Harris
19 County Institute of Forensic Sciences?

20 A. Five years.

21 Q. And the whole five years, have you been the
22 assistant chief toxicologist?

23 A. No. Last year I was promoted.

24 Q. Tell the members of the jury what you did
25 before you became the assistant chief toxicologist.

1 A. I was a toxicology II specialist. This was to
2 develop methods as well as review casework.

3 Q. And what do you mean when you say "review case
4 work"? What does that mean?

5 A. I check to make sure that it was done according
6 to our established validated procedures.

7 Q. Now, have you only worked at the Harris County
8 Institute of Forensic Science?

9 A. In forensics, yes.

10 Q. Where did you work before you became a forensic
11 toxicologist?

12 A. I was a post-doctorate fellow at the Baylor
13 College of Medicine studying cardiovascular disease.

14 Q. How long did you do that?

15 A. About three years.

16 Q. When did you graduate with your Ph.D.?

17 A. 2004.

18 Q. So, as a toxicologist -- or can you tell the
19 members of the jury what a forensic toxicologist is?

20 A. Toxicology is the study of drugs and poisons
21 that affect the body. And in the forensic context, it's
22 done in a way that is highly regulated and documented so
23 that the results are applicable to justice and law
24 determinations.

25 Q. Outside of your formal education, is there

1 other trainings and certifications that you have to go
2 through to become a toxicologist at the Harris County
3 Institute of Forensic Sciences?

4 A. Yes, you do have to participate in training
5 exercises, attend conferences, share ideas with other
6 toxicologists. I'm also board certified as a diplomate
7 of the American Board of Toxicology.

8 Q. What does board certified mean?

9 A. That I'm an expert.

10 Q. Is that a test that you have to take? How do
11 you become board certified?

12 A. Well, you have to have at least three years of
13 working in the forensic toxicology lab. You have to
14 have a Ph.D. You have to have shown significant
15 contributions in terms of academic analysis, like
16 writing papers, giving presentations. And I've done all
17 that.

18 Q. Do you belong to any professional organization?

19 A. The ABFT, the American Board of Forensic
20 Toxicology -- I mean -- I'm sorry -- that's the American
21 Board -- the AAFS, which is the American Academy of
22 Forensic Sciences.

23 Q. Now, have you testified as an expert before?

24 A. Yes.

25 Q. On few or many occasions?

1 A. About a dozen.

2 Q. Is your lab certified by the Texas Department
3 of Public Safety?

4 A. Yes.

5 Q. Now, whenever you -- your lab gets blood vials,
6 how do you come -- how does your lab get the blood
7 vials?

8 A. It was deposited by an officer.

9 Q. Okay. Typically, they're deposited by an
10 officer.

11 Now, do you test blood results for just
12 Harris County cases or how does that work?

13 A. Yeah. Any cases that come from the Harris
14 County Sheriff's Office. Also, outlying cities such as
15 Webster, things like that, the smaller communities can
16 all send their vials to us.

17 Q. Do you just test blood results as it relates to
18 driving and DWI cases?

19 A. No. Primarily we do post-mortem testings. So,
20 this is blood work and other specimens from autopsy
21 cases, as well as the blood and urine of DUI suspects
22 and victims of sexual assault.

23 Q. How often are blood tests conducted by you?

24 A. I don't personally do blood tests anymore.

25 Q. When did you stop doing the blood tests?

1 A. Maybe two years ago.

2 Q. I want to talk to you specifically about
3 testing for controlled substances. Is it possible to
4 take a -- blood that was taken from an individual and
5 determine through the use of equipment what the
6 content -- or whether or not there's controlled
7 substances in their blood?

8 A. Yes.

9 Q. And this can also be done to determine whether
10 or not there's alcohol; is that right?

11 A. Yes.

12 Q. Is there different methods for those?

13 A. Yes.

14 Q. All right. What -- tell the jury about the
15 method used to test for controlled substances?

16 A. Typically, the first test to look for
17 controlled substances would be what they call amino
18 acephate. This uses antibodies that can recognize
19 classes of drugs within cocaine, benzodiazepines,
20 opiates, amphetamines, methamphetamine, many others.

21 Q. Okay. What instrument is used to test for
22 those controlled substances?

23 A. It's an amino acephate. It's basically called
24 an ELISA. And that uses an antibody to capture that --
25 as the blood is placed into a well, an antibody will

1 capture that drug and be used to elicit a signal that
2 can, say, yes, we see something, or, no, it's not there.

3 Q. And is that to just test for the presence of a
4 drug or does it test -- does it quantify the drug?

5 A. That just elicits a -- kind of a thumbs-up,
6 thumbs-down sort of assessment.

7 Q. Okay. I want to talk to you specifically about
8 this particular case. This is a case that was worked by
9 the Houston Police Department. Does the Harris County
10 Institute of Forensic Science typically test blood for
11 the Houston Police Department?

12 A. No.

13 Q. All right. How was it that your lab became
14 involved in this particular case?

15 A. The blood was sent to Dallas County. They have
16 a medical examiner's office. And they used a gas
17 chromatography technique to find the presence of the
18 Topiramate.

19 Q. To your knowledge, does the Houston Police
20 Department Crime Lab, do they have the ability to test
21 for drugs and controlled substances?

22 A. No, not in a toxicology setting.

23 Q. All right. What is the Houston Police
24 Department Crime Lab equipped to test for?

25 A. I'm not fully aware of their capabilities, but

1 I know that they don't do toxicology and drugs.

2 Q. Okay. All right. So, that it's sent off. And
3 in this particular case, the blood was sent off to a lab
4 in Dallas?

5 A. That's right.

6 Q. Now, how was it that -- why did your office
7 become involved?

8 A. We have a method for quantitating levels of
9 Topiramate.

10 Q. And to your knowledge, did the lab in Dallas
11 have the ability or capability to quantify drugs?

12 A. Not at the time.

13 Q. All right. When did your lab receive the blood
14 vials for this particular case?

15 A. March 14th, 2011.

16 Q. And when it comes to prescription drugs, why is
17 it important to quantify the amount of drugs in
18 someone's blood?

19 A. We can determine if it's being used
20 therapeutically or if it has an intoxicating level or a
21 fatal level.

22 Q. And is that just purely by the amount that's in
23 the blood that you can tell that?

24 A. Well, the blood would be the best indicator.

25 Q. Now, your lab received it, you said, on March

1 14th of 2011?

2 A. Yes.

3 Q. Had the blood had already -- you said already
4 been tested by the lab in Dallas; is that right?

5 A. Yes.

6 Q. So, were you aware of -- or was your office
7 given a specific purpose?

8 A. Yes, we were just told to determine the level
9 of Topiramate.

10 Q. Okay. So, were you already aware that
11 Topiramate was found in the blood?

12 A. Apparently so.

13 Q. Okay. Now, I want you to talk to the members
14 of the jury about what equipment is used to perform the
15 quantification testing.

16 A. We have an instrument or a couple of
17 instruments that use LC/MS/MS technology. This is
18 liquid chromatography, tandem mass spectrometry. What
19 this does is, you take an extract from blood that has
20 the drugs in it and it separates it on a column into
21 concentrated zones or peaks. These peaks are then
22 changed from a liquid to a gas phase and they enter into
23 a triple-quad chamber of magnets that can hold these
24 drugs in a gas cloud and then bombard them with nitrogen
25 molecules that break apart. And we can measure the ion

1 ratios and the amounts of the fragments of these drugs
2 and know unambiguously this was this drug and how much.

3 Q. And is this equipment equipment that's widely
4 accepted in the scientific community?

5 A. Yes. It's the gold standard.

6 Q. Sorry. Say that again.

7 A. The gold standard for doing this type of work.

8 Q. What's the gold standard?

9 A. The best.

10 Q. Is this kind of testing done frequently at the
11 Harris County Institute of Forensic Science?

12 A. Yes, routinely.

13 Q. How is it that you know that the -- when you're
14 going to perform or someone is going to perform a
15 specific test on blood, how do you know whether or not
16 the equipment is working properly?

17 A. When we have to -- this is part of the forensic
18 side where we have to -- we have to demonstrate that
19 this machinery was working at the day of the test, that
20 the mass chromatographer was tuned correctly, finding
21 the right ions it should, that the chromatography was
22 doing its purification like it should. We have a number
23 of documents that support all of this.

24 Q. In this particular case, what was your role in
25 the testing of the defendant's blood?

1 A. After the analysis was complete, the case was
2 complete and so it came to me as a completed case of
3 here's all the testing that was done, here's how it was
4 done, and I looked it over to make sure that, yes, the
5 tune was correct, that, yes, the chain of custody was
6 intact, that all the steps were followed to make it a
7 forensically reportable result. And then I issued my
8 signature.

9 Q. So, were you involved in interpreting the
10 results in this case?

11 A. Yes.

12 Q. I want you to talk to the jury about, how many
13 people are involved in the actual testing of blood or
14 were involved in this particular case? I mean, you
15 don't --

16 A. We can -- in our laboratory, we do a batch
17 testing. So, it kind of moves through screening and
18 extraction and confirmation and review and then
19 administration review. Of course, we didn't do any
20 screening for this. We just went right to the
21 confirmation. So, there were about five people involved
22 just in the testing.

23 Q. And the person that actually dropped the blood,
24 the analyst that actually dropped the blood onto the
25 instrument was who?

1 A. Fu Tian.

2 MS. COOPER: Your Honor, at this time State
3 offers State's Exhibit 84, which is the certificate of
4 analysis that has been on file for over 14 days that the
5 defense has had access to of Fu Tian.

6 **(State's Exhibit No. 84 Offered)**

7 MS. BECK: I just would like to see the
8 copy that's being submitted, Your Honor, please.

9 THE COURT: Sure.

10 MS. COOPER: I'm tendering to opposing
11 counsel State's Exhibit No. 84.

12 MS. BECK: No objection, Your Honor, to
13 State's 84.

14 THE COURT: State's 84 is admitted.

15 **(State's Exhibit No. 84 Admitted)**

16 Q. (By Ms. Cooper) Do you know Fu Tian?

17 A. Yes.

18 Q. How do you know him?

19 A. He's an analyst in our laboratory.

20 Q. Is he -- what kind -- what level is he?

21 A. He's a toxicologist II.

22 Q. And what kind of education do you have to have
23 to be a toxicologist II?

24 A. I think in his case he does have a bachelor's
25 in science of chemistry and a master's as well.

1 Q. And his education is laid out in the
2 certificate of analysis. Let me show you State's
3 Exhibit No. 84. Is that right (indicating)?

4 A. Yes.

5 Q. He's got a master of science degree in applied
6 chemistry from New Mexico Highlands University?

7 A. Yes.

8 Q. And the certificate of analysis the -- have you
9 had an opportunity to look at this?

10 A. Yes.

11 Q. And were you able to tell whether or not the
12 instrument was working properly during the phase that
13 Fu Tian was involved in it, when he dropped the blood
14 onto the instrument?

15 A. Yeah. There's supporting material that would
16 be available, like in a discovery request, that shows
17 that it was tuned properly and that the chromatography
18 was operating correctly.

19 Q. What happens if the instrument is not properly
20 working?

21 A. Then we would do maintenance on it or call for
22 a mechanic, so to speak to.

23 Q. Are you able to run a test on blood if the
24 instrument isn't working?

25 A. We have other instruments.

1 Q. But would you know -- like, if an instrument
2 isn't working properly, would you know before you
3 conducted a blood test?

4 A. Yes.

5 Q. And how?

6 A. It would show signs of not being able to find
7 the right ions in the tune phase and the chromatography
8 would give a poor resolution of a peak. And so, we
9 would be able to diagnose what the problems were.
10 Perhaps, apply fixes. And if not, we have to get the
11 vender to repair it.

12 Q. And whenever you're reviewing and interpreting
13 blood results like you did in this case, do you look
14 over and determine whether or not everything was working
15 and acting as it should be?

16 A. Yes.

17 Q. And how was the instruments and the equipment
18 in this particular case?

19 A. Working well.

20 Q. Okay. Now, when did you do the interpretation
21 on this? When did you specifically become involved in
22 this case?

23 A. I issued my signature on April 13th, 2011, as I
24 looked over the material and did biomedical searches in
25 the literature, looking at clinical studies, things like

1 that.

2 Q. When you put your signature on a lab sheet,
3 what does that mean?

4 A. That means I've reviewed the data and certified
5 it to be true and correct.

6 MS. COOPER: Your Honor, may I approach the
7 witness?

8 THE COURT: Yes.

9 Q. (By Ms. Cooper) I'm showing you State's Exhibit
10 No. 85. Do you recognize this (indicating)?

11 A. Yes.

12 Q. How do you recognize it?

13 A. It has my signature. It has the laboratory
14 number.

15 Q. I also want to show you State's Exhibit No. 74.
16 Do you recognize State's Exhibit No. 74 --

17 A. Yes.

18 Q. -- and its contents (indicating)?

19 A. Yes.

20 Q. How do you recognize it?

21 A. It has our barcode labels.

22 Q. Tell the members of the jury how you keep --
23 how you -- when blood is received in your lab, how is it
24 identified?

25 A. We assign a code and IFS number, Institute of

1 Forensic Sciences. And it's more of a sequential sort
2 of assignment where each bit of evidence that comes in
3 the laboratory gets a -- gets this code, then we print
4 out barcodes that can electronically track the chain of
5 custody as this sample moves through the laboratory,
6 so...

7 Q. So, every time this blood, the contents of
8 State's Exhibit 74, is handled by someone in your lab,
9 is it identified by the barcode?

10 A. Right. They -- they scan it with a scanner and
11 they scan it also into their custody. You have to enter
12 in a PIN number. It's a secure transaction that they
13 removed it from a refrigerator to go apply it to some
14 analysis, then returned it to the refrigerator, and
15 everything is date and time stamped.

16 Q. What's the lab number in this particular case?

17 A. IFS11-2179.

18 Q. And is that the blood that was obtained from
19 Michael Petty --

20 A. Yes.

21 Q. -- on July 26th of 2010? Or you don't know the
22 date?

23 A. The date that it came in was March 14th.

24 Q. State's Exhibit No. 85, is this the lab report
25 for the quantification of the Topiramate of the

1 defendant's blood?

2 A. Yes.

3 Q. And does it have that same lab number on top?

4 A. Yes.

5 Q. And that's IFS11-02179?

6 A. That's right.

7 Q. And does that match the same number that's on
8 the blood vials?

9 A. Yes, that's correct.

10 MS. COOPER: Your Honor, at this time
11 tendering to opposing counsel State's Exhibit No. 85 and
12 ask that it be admitted into evidence.

13 **(State's Exhibit No. 85 Offered)**

14 MS. BECK: No objection to State's 85, Your
15 Honor.

16 THE COURT: State's 85 is admitted.

17 **(State's Exhibit No. 85 Admitted)**

18 Q. (By Ms. Cooper) During your training and
19 education, did you learn about different types of drugs?

20 A. Yes.

21 Q. Can you tell the members of the jury about
22 Topiramate and what classification of drug that is?

23 A. Topiramate is a kind of a derivative of sugar
24 fructose and it's mainly used to treat epilepsy. So, it
25 controls seizures. And it tends to have a cluster of

1 activities, one of which is affecting the GABA receptor
2 in the brain. That's the receptor that alcohol affects.
3 It also affects the -- or antagonizes the effects of
4 glutamate receptors, which controls the flow of sodium
5 in and out of the cell. So, it lowers membrane
6 potential so cells don't fire or generate transmissions
7 very rapidly. So, it's -- in a sense, it's a CNS
8 depressant.

9 Q. What is a CNS depressant?

10 A. A drug that slows neuronal firing that, you
11 know, causes drowsiness and loss of coordination, things
12 like that.

13 Q. Is that the same as -- is alcohol also a CNS
14 depressant?

15 A. Yes.

16 Q. So, when someone -- what is the difference in
17 Topiramate and Topamax?

18 A. The Topiramate is the chemical name of the
19 drug. Topamax is a brand name.

20 Q. Okay. So, it's the same thing?

21 A. Yes.

22 Q. All right. Now, when someone takes Topiramate
23 or Topamax, what kinds of effects will it have on the
24 body?

25 A. It can cause dizziness, drowsiness, loss of

1 coordination, slurred speech. One of the most notable
2 effects that's been found is cognitive impairment or
3 clouded judgment.

4 Q. What does cognitive impairment mean?

5 A. It's the inability to, say, remember and recall
6 memories, information, making judgments. Quick
7 decisions are impaired.

8 Q. How does this impact someone's driving
9 abilities?

10 A. Adversely.

11 Q. In what ways?

12 A. In the safe operation of a vehicle, you have to
13 keep track of a number of things; time and speed,
14 distance relative to other cars, keeping track of many
15 different things. And whenever those -- under the
16 influence of an intoxicating drug, the ability to keep
17 track of positions of cars and of rate and speed and
18 coordination are all impaired.

19 Q. Now, is that true on someone that is taking a
20 prescribed dose? Can they still be affected and have
21 cognitive impairment on Topiramate?

22 A. It can, yes.

23 Q. I want to talk to you specifically about
24 State's Exhibit No. 85 and the defendant's levels of
25 Topiramate. Can you explain to the jury what this

1 number on State's Exhibit No. 85, the middle number
2 under "result," what that means?

3 A. Thirteen milligrams per liter was measured in
4 the blood. This is an amount that is much higher than
5 one would expect under normal treatment for -- treatment
6 of epilepsy, or migraines as in this case.

7 Q. Now, you've said that Topiramate is used to
8 treat epilepsy. Are there other uses for it as well?

9 A. Right. It's also been known to be used for
10 treating migraines that might have -- that have failed
11 other therapies.

12 Q. Now, typically, when you see a number, the
13 number of Topiramate on someone that's taking a
14 therapeutic dose, tell the members of the jury what a
15 therapeutic dose is. What does that mean?

16 A. Therapeutic dose would be the amount needed to
17 achieve therapeutic resolution, but not too excessive to
18 cause adverse effects.

19 Q. So, typically, a therapeutic dose would be --
20 what number would you be looking at?

21 A. Around 4 to 5 milligrams per liter.

22 Q. The 13 milligrams per liter, how much
23 Topiramate would it take to get to this level?

24 A. About 5 to 600 milligrams.

25 Q. Now, is that 5 to 600 milligrams taken all at

1 one time?

2 A. In a short interval.

3 Q. What does a short interval mean?

4 A. Maybe within five to ten hours.

5 Q. So, if someone had a prescription filled, let's
6 say, at about 10:00 p.m. for 30 hundred-milligram
7 tablets of Topiramate and the next morning, around
8 12:30, it was discovered that six of those pills were
9 missing, would that be consistent with the levels of
10 Topiramate that were determined to be in the defendant's
11 body?

12 A. Yes.

13 Q. So, six 100-milligram tablets is how much
14 Topiramate?

15 A. Six hundred.

16 Q. Six hundred milligrams.

17 Okay. Now, what is the half-life of
18 Topiramate -- or explain to the jury, what does
19 half-life mean?

20 A. Half-life is a concentration-dependent process
21 of elimination in the body for certain drugs. And in
22 this case, Topiramate has a half-life of around 20
23 hours. So, every 20 hours it goes by half and then half
24 and then half of the original amount is left.

25 Q. So, one 100-milligram pill taken in the body,

1 how long would that pill last?

2 A. Usually, any drug will persist about six to
3 seven half-lives. So, that would be 140 hours, I guess.

4 Q. But let's say if a prescribed dose is three
5 pills a day, 100-milligram tablets a day, would you --
6 does some of that bleed over?

7 A. Yes.

8 Q. Okay. Explain that to the jury and how that
9 works.

10 A. Because of the long half-life, after a 24-hour
11 period of taking a dose, you're still going to have at
12 least half of that drug still persisting in the body,
13 so...

14 Q. Now, the level of 13 milligrams per liter, is
15 that a therapeutic dose?

16 A. It exceeds what would be a normal therapeutic
17 level.

18 Q. What -- would that be an intoxicating amount?

19 A. Yes.

20 Q. Now, what about tolerance, what do you know
21 about tolerance?

22 A. Studies have shown that there is no tolerance
23 that develops with this drug.

24 Q. What do you mean "no tolerance that develops"?

25 A. As you increase the dose, you get more and more

1 of the effect.

2 Q. So, does Topiramate -- can you explain to the
3 members of the jury what tolerance is and what it means?

4 A. Tolerance is the body's way of kind of building
5 up a resistance to drugs. So, say, if you were taking
6 an opioid medication for back pain, you might develop a
7 tolerance so you would have to take more of it to still
8 achieve the same effect. So, the body will
9 down-regulate receptors that normally are engaged by
10 this drug and transmit that information to your brain to
11 feel less pain or whatever.

12 In this case, Topiramate works through
13 many, many different pathways. And so, if one starts to
14 shut down, the rest will continue to convey that
15 information to the body.

16 Q. So, regardless of someone's tolerance on any
17 kind of medication, is this still a high level of
18 Topiramate?

19 A. Yes. There was a study that was published back
20 in 2006 on review of DUI suspects and this is right
21 around the level --

22 MS. BECK: I'm going to object, Your Honor,
23 to nonresponsive.

24 THE COURT: Overruled.

25 You may finish your answer.

1 A. This was found to be consistent with other DUI
2 suspects that had Topiramate alone.

3 Q. (By Ms. Cooper) Now, someone that has these
4 levels of Topiramate in their system could -- let's
5 assume that they're able to stand on one foot and
6 complete the one-leg stand and walk a straight line, but
7 they still have six clues indicated on the horizontal
8 gaze nystagmus test. What does that indicate to you
9 regarding their level of intoxication?

10 MS. BECK: I'm going to object, Your Honor,
11 with regard to this defendant testifying as to HGN and
12 other field sobriety tests administered unless he's
13 certified in the giving of those tests.

14 THE COURT: Sustained.

15 Q. (By Ms. Cooper) Whenever you -- through your
16 education and training -- do you work closely with law
17 enforcement?

18 A. Well, at the Harris County Institute for
19 Forensic Sciences, we're not really affiliated with law
20 enforcement. So, we're kind of an independent science
21 resource.

22 Q. When you're conducting these kinds of tests, do
23 you take into consideration the defendant's performance
24 on field sobriety tests?

25 A. Yes.

1 Q. And are you familiar with nystagmus?

2 A. Yes.

3 Q. And what nystagmus means?

4 A. Yes.

5 Q. Do you have training about what nystagmus is
6 and how the body is affected?

7 A. Yes.

8 Q. What training do you have on that?

9 A. I've studied many of the medical literature
10 that pertain to -- nystagmus is really kind of an
11 out-growth of being under the influence of a drug --

12 MS. BECK: Objection. Nonresponsive. Her
13 question was what --

14 THE COURT: Sustained. The question is as
15 to your training in that regard.

16 Q. (By Ms. Cooper) What training do you have of
17 nystagmus?

18 A. I've read many books and journals on the
19 subject.

20 Q. All right. And do you use -- these journals
21 that you've read, are these journals that are
22 peer-reviewed?

23 A. Yes.

24 Q. Are these journals journals that you take into
25 consideration -- into consideration when you're

1 conducting your work?

2 A. Yes.

3 Q. Now, as far as when someone has nystagmus,
4 how -- how is their body affected?

5 MS. BECK: I'm going to object, Your Honor,
6 with regard -- my same objection with regard to this
7 defendant {sic} testifying -- unless I can take him on
8 voir dire briefly -- with regard to him testifying to
9 HGN after only having read some books and some journals.

10 THE COURT: Overruled.

11 And you may take him on voir dire if you
12 want to.

13 MS. BECK: Yes, Your Honor.

14 **VOIR DIRE EXAMINATION**

15 **BY MS. BECK:**

16 Q. Doctor -- is it Walterscheid?

17 A. Walterscheid.

18 Q. I'm sorry. I want to make sure I pronounce
19 your name correctly.

20 My name is Michelle Beck -- Beck. Excuse
21 me. And with regard to the training and experience and
22 your involvement with the HGN, have you ever
23 administered the HGN?

24 A. No.

25 Q. Okay. Have you ever observed someone being

1 given the horizontal gaze nystagmus test --

2 A. Yes.

3 Q. -- by -- let me finish my question -- by a
4 police officer?

5 A. Yes.

6 Q. On how many occasions?

7 A. I think twice.

8 Q. Twice.

9 And are you an ophthalmologist or trained
10 in any way with regard to the musculature movements of
11 the eye?

12 A. No.

13 Q. And how many journals or articles would you say
14 that you've read on nystagmus?

15 A. Thirty or more.

16 Q. Thirty or more articles?

17 A. Yes.

18 Q. Okay. And have you had an occasion -- or have
19 you had few or many occasions to attend any type of
20 formal training put out by either the Texas Department
21 of Public Safety, NTSA, or any regulatory agencies that
22 actually train officers in the administration of the HGN
23 test?

24 A. No.

25 MS. BECK: Your Honor, based upon the

1 witness' questions {sic}, I'm going to reurge my
2 objection.

3 THE COURT: Overruled.

4 MS. BECK: Thank you, Your Honor.

5 THE COURT: You may continue, Ms. Cooper.

6 **DIRECT EXAMINATION**

7 **CONT'D BY MS. COOPER:**

8 Q. Are you familiar with the ways that -- or the
9 effects that certain drugs have on the body?

10 A. Yes. That's part of being a forensic
11 toxicologist.

12 Q. Okay. And someone that has six clues, HGN, but
13 may be able to walk a straight line, say, on one foot,
14 and may not have slurred speech, what kind of -- and
15 they've got these levels of Topiramate in their system,
16 what kinds of effects is going on inside of their body,
17 is this drug having on them?

18 A. Well, the nystagmus can be explained by
19 engaging the GABA receptor. This is what is seen, say,
20 under ethanol intoxication. The eye has a normal kind
21 of a nystagmus movement, but this becomes much more
22 profound under the influence of the drug that affects
23 GABA. So, the onset of this horizontal wiggling will
24 occur at a very shallow angle. So, that's how that
25 correlates.

1 And then the Topiramate also effects things
2 like the glutamate receptors and their ability to
3 transmit and release sodium in and out of the cell. So,
4 loss of coordination, slurred speech, things like that
5 will manifest. Also, it inhibits carbonic anhydrase,
6 which kind of controls the pH levels in the blood. So,
7 pH levels tend to drop a little bit. So, it creates
8 kind of this fatigue, dizziness.

9 Q. Would there be a lot of -- let's say with
10 fatigue, could that cause yawning?

11 A. Sure.

12 Q. Now, when someone has HGN, how does that affect
13 their ability to drive or operate a motor vehicle?

14 A. Nystagmus is a natural mechanism the body uses
15 to track objects as they're passing, especially in
16 peripheral vision. And so, you're -- whenever you're in
17 traffic or let's say you're stationary watching a car go
18 by, you're really locking on and tracking it. So, if
19 nystagmus is -- is enhanced, affected, it's -- you lack
20 the ability to lock and track. And it's more of a -- a
21 wavering, so kind of a blurry, double-vision sort of
22 effect.

23 Q. The blood in this case was drawn at
24 approximately 2:23, the crash was at 12:30. Is there --
25 I know with alcohol, the blood levels change. With

1 Topiramate, specifically this kind of drug, are you able
2 to tell what the blood levels would have been
3 approximately two hours before the time that the blood
4 was drawn?

5 A. Since Topiramate has such a long half-life, the
6 levels would be approximately the same, if not just a
7 little higher, but...

8 Q. Based on your experience and training and the
9 results of this blood test, do you have an opinion as to
10 whether or not the defendant was intoxicated at the time
11 of this crash?

12 MS. BECK: I'm going to object, Your Honor.

13 THE COURT: Overruled.

14 A. This is a level consistent with intoxication.

15 Q. (By Ms. Cooper) So, what is your opinion?

16 A. Yes, this is intoxicating.

17 MS. COOPER: I pass the witness.

18 THE COURT: Ms. Beck.

19 MS. BECK: May I continue?

20 **CROSS-EXAMINATION**

21 **BY MS. BECK:**

22 Q. Doctor, you stated early on that one of the
23 things that you are responsible for at the Harris County
24 Forensic Institute -- what -- Harris County Institute of
25 Forensic Sciences is that you are involved in developing

1 new methods. What did you mean by that?

2 A. Perhaps, you've heard of bath salts and spice
3 and designer drugs, things like that. Also, any kind of
4 new drug that might come out on the market, I usually
5 take a hand in developing an extraction and confirmation
6 method using the tandem mass spectrometry.

7 Q. Okay. And you'd agree with me that the testing
8 that you-all do over there is an evolving science?

9 A. Yes.

10 Q. Would you agree?

11 A. Yes.

12 Q. Okay. So, in other words, the testing that
13 you-all do on drugs today probably vary considerably to
14 the testing and the accuracy that you received, let's
15 say, 30 years ago, correct?

16 A. The equipment now is much better at handling
17 it.

18 Q. Okay. Even in the last 10 years. Would you
19 agree with that?

20 A. Yes.

21 Q. Okay. And so, with regard to what you're
22 finding today, in the future, again, it possibly could
23 continue to evolve, this particular forensic science?

24 A. Oh, yes.

25 Q. Okay. And you stated that the other thing that

1 you are responsible for doing is reviewing -- reviewing
2 the results that others under you -- the other
3 toxicologists have tested. Correct?

4 A. That's right.

5 Q. And Harris County, what, third or fourth
6 largest county in the United States?

7 A. Fourth largest city, I think. I don't know
8 county-wise.

9 Q. I guess what I'm trying to get at, the volume
10 of testing that you-all do over there is incredible,
11 correct?

12 A. Yeah. There's about -- we do about 3 to 4,000
13 post-mortem analyses in a year and probably about 1500
14 DUI.

15 Q. Okay. So, with 1500 for the DWI, I mean, you
16 can't actually go back and review all of the records and
17 look at the -- you can't do everything by yourself,
18 correct?

19 A. Not all by myself.

20 Q. So, that's why you have people such as Mr. --
21 and I don't want to mispronounce his name, but Mr. Tian?

22 A. Tian.

23 Q. -- Tian who do the -- who actually perform the
24 lab tests and then you go behind them, and, basically,
25 try to see if everything is okay, up to snuff before you

1 sign off on it, correct?

2 A. That's right.

3 Q. And that's actually what you did in this case,
4 correct?

5 A. That's right.

6 Q. Although, there's a peer-review certificate of
7 analysis that was submitted, you weren't present when
8 Mr. Tian actually performed these lab tests, correct?

9 A. I was there at the laboratory. I don't -- I
10 didn't oversee him do this procedure, yeah.

11 Q. Okay. And you stated that there is some
12 information that is available with regard to the -- how
13 the equipment was working on that particular day?

14 A. Yeah.

15 Q. That could be available upon discovery,
16 correct?

17 A. That's right.

18 Q. Meaning, if anybody wants to see it, you can
19 bring those records, correct?

20 A. Yes.

21 Q. But in preparation, you didn't bring those
22 records today, correct?

23 A. No.

24 Q. You don't have anything to show to this jury
25 showing that the particular equipment or pieces of

1 equipment that Mr. Tian used were in proper working
2 order, correct?

3 A. I didn't bring them.

4 Q. Okay.

5 MS. BECK: May I approach the witness, Your
6 Honor?

7 THE COURT: Yes.

8 Q. (By Ms. Beck) And so, with regard to the
9 certificate of analysis, the day that Mr. Tian actually
10 performed the test was on what day? See down here, the
11 last paragraph it says something about on the 31st day
12 of March. Is that when the testing -- can you see that
13 paragraph (indicating)?

14 A. Oh, yes.

15 Q. Is that when the testing was actually done?

16 A. Yes.

17 Q. Okay. And then what day was it that you
18 actually signed off on it?

19 A. April 13th.

20 Q. Okay. So -- oh, goodness -- about two weeks
21 after it was done?

22 A. Yes.

23 Q. Okay. Now, while you don't have the
24 documentation to show that -- or haven't brought it to
25 show that -- and what was the instrument that was used?

1 Is there more than one instrument?

2 A. Yes.

3 Q. Okay. How many instruments are used in this
4 type of testing?

5 A. We have two LS tandem mass spectrometers.

6 Q. Okay. So, this sample would have been tested
7 by both of those instruments or just one?

8 A. Just one.

9 Q. Okay. And you stated that, basically, what it
10 does is it -- first of all -- and I'm bad at science, so
11 I'm just going to try to talk in layman's terms, but
12 what you try to do first is determine is there a
13 substance there, thumbs-up or thumbs-down I think is
14 what you said. Correct?

15 A. If we had done the screening, but we didn't.

16 Q. Okay. So, that had been done for you?

17 A. Yes.

18 Q. And then Mr. Tian, what is the next thing that
19 he's going to be looking at in trying to quantify the
20 amount of Topiramate?

21 A. Right. So, what they do is the blood is
22 extracted using organic solvents and that removes the
23 drug out of the blood into this extract. And then
24 that's dried down and resuspended in a -- in a liquid
25 buffer that can be injected onto our machine.

1 Q. Okay. And you testified that after getting
2 these results -- and, basically, the 13 milligrams per
3 liter is what Mr. Tian actually came up with, correct?

4 A. Yes.

5 Q. All right. And you reviewed it and then put
6 your signature on it, correct?

7 A. That's right.

8 Q. Now, Ms. Cooper asked you or you volunteered
9 that there are three levels of basically what you
10 referred to as -- to see if it's therapeutic
11 intoxication or fatal levels, correct?

12 A. Right.

13 Q. Okay. And in your interpretation, ultimately,
14 you've been called by the State and your testimony is
15 that it was an intoxication level, correct?

16 A. Yes.

17 Q. All right. You, based on your training and
18 experience, are very familiar with the drug of
19 Topiramate, correct?

20 A. Yes.

21 Q. And in your testimony, it's fair to say that
22 you cannot conclusively state what the effects of this
23 alleged -- or this 13 milligrams per liter that Mr. Tian
24 came up with, how it would have affected Mr. Petty in
25 this case, correct?

1 A. Well, based on my experience and training, it's
2 consistent with what is found in the medical literature.

3 Q. My question isn't is it consistent with. My
4 question is: You can't tell this jury conclusively, can
5 you? "Yes" or "no"?

6 A. That -- "yes" or "no" that it is not --

7 Q. That this particular level that you all came up
8 with had an intoxicating effect on Michael Petty?

9 A. I can only say it's consistent with
10 intoxication.

11 Q. Well, let me ask you this: When you talk about
12 the side-effects of Topiramate, you'd agree with me that
13 you cannot say that side-effects -- these particular
14 side-effects always occur, correct?

15 A. Not always.

16 Q. When you do your -- when you do -- when they do
17 the studies and they publish them in journals, there's
18 always going to be that 1, 2, 3, 20, 30 percent in the
19 sample size that's not going to be consistent with the
20 majority, correct?

21 A. I agree.

22 Q. In other words, there's going to be the person
23 that doesn't experience dizziness or drowsiness,
24 correct?

25 A. That can be true.

1 Q. Okay. There's going to be the person who
2 doesn't have blurred vision the way it may affect other
3 people, correct?

4 A. That's possible.

5 Q. There's going to be the person that has no --
6 no serious side-effects, although there may be a long
7 listing of side-effects that may be common, correct?

8 A. True.

9 Q. I mean, we see the commercials and sometimes
10 the number of side-effects outweighs -- or is more
11 serious than what you're trying to cure with that
12 particular drug, correct?

13 A. Yes.

14 Q. But it's very common or it is often the case
15 that even though you hear this scary list of
16 side-effects, a person may actually not experience any
17 of them, correct?

18 A. True.

19 Q. Now, you stated what you would expect for the
20 therapeutic dose would be between 4 and 5, correct?

21 A. About that, yeah.

22 Q. And the number that you-all came up with is 13,
23 correct?

24 A. Right.

25 Q. And so, at what point between therapeutic and

1 intoxicating levels would you draw the number? Is it 6?

2 Is 6 all of a sudden intoxicating?

3 A. No, it's not a -- it's kind of a gray area.

4 It's more of observations of --

5 Q. Okay. I'm sorry. I don't want to cut you off.

6 Observations of?

7 A. Observations of intoxication correlating with
8 scientific data that we have.

9 Q. Okay. So, observations of whom?

10 A. From the police reports and witnesses.

11 Q. And so, in order for you to then move it to an
12 intoxicating level, you've got to rely on what the
13 police officers put in the report, correct?

14 A. That's right.

15 Q. Because you have no -- I mean, you weren't out
16 there at the scene at any time, didn't become involved
17 in this case until almost a year later, correct?

18 A. That's right.

19 Q. And so, you've got to depend on whatever the
20 arresting officers or the observing officers say to then
21 come in here and tell the jury whether or not you think
22 it's therapeutic or intoxicating, correct?

23 A. Right.

24 Q. Okay. Have you met or talked with an Officer
25 Egdorf in this case?

1 A. No.

2 Q. Do you recall if you actually reviewed or spoke
3 with the district attorneys about what the alleged signs
4 of intoxication were?

5 A. Yes.

6 Q. Okay. And so, you reviewed that, took their
7 words for it, and then made your conclusion, correct?

8 A. Yes.

9 Q. Ms. Cooper gave you a hypothetical about six
10 pills being missing and whether or not those, if they
11 were actually taken, is that consistent with what your
12 findings would be. Correct?

13 A. That's right.

14 Q. And you said yes, correct?

15 A. Yes.

16 Q. All right. But, hypothetically, if those pills
17 are missing from a bottle but not necessarily were all
18 six ingested, how would you rectify your conclusion
19 then?

20 A. It wouldn't match the levels that we found in
21 the blood.

22 MS. BECK: I pass the witness, Your Honor.

23 THE COURT: Ms. Cooper.

24 MS. COOPER: Thank you, Your Honor.

25 **REDIRECT EXAMINATION**

1 **BY MS. COOPER:**

2 Q. Dr. Walterscheid, the -- you talked about
3 there's documentation that is available through
4 discovery regarding the instruments and how they're
5 working.

6 A. Right.

7 Q. Are those instruments that -- I mean, is that
8 information -- could it have been requested by the
9 defense attorney at any time?

10 A. I don't really handle that, so...

11 Q. Are those documents provided upon request to
12 defense attorneys through your office on a regular
13 basis?

14 A. Oh, yes.

15 Q. And you -- Fu Tian, is that the person that
16 actually dropped the blood onto the instrument?

17 A. Right.

18 Q. And who is the person that interpreted the
19 results and determined what they meant?

20 A. I did.

21 Q. Okay. And when you sign off on a document,
22 would you have signed off on a document where the
23 instruments weren't working properly?

24 A. We wouldn't report. We would have to go back
25 and repeat or find out why it didn't work out.

1 Q. Anything in this case where you had to go back
2 and repeat and retest because of --

3 A. No.

4 Q. In the two-week time period from the testing
5 until you signing off, is that uncommon?

6 A. Not so much anymore, but back in the day we
7 were really overwhelmed, so...

8 Q. And someone with these levels of Topiramate,
9 that is -- is that consistent with behavior of weaving
10 in and out of traffic at a very high rate of speed and
11 striking another vehicle?

12 A. It would explain the inability to maintain a
13 lane. Yeah, just observant behavior of intoxication.

14 MS. COOPER: I pass the witness.

15 THE COURT: Ms. Beck.

16 MS. BECK: Nothing else, Your Honor.

17 THE COURT: You may step down, sir.

18 Call your next witness.

19 MS. COOPER: State calls Amparo Garza.

20 **AMPARO GARZA,**

21 having been first duly sworn, testified as follows:

22 **DIRECT EXAMINATION**

23 **BY MS. COOPER:**

24 Q. Can you please state and spell your name for
25 the Court?