

Exhibit 54

James P. Kababick
IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION

UNITED STATES OF AMERICA,

Plaintiff,

vs.

UNDETERMINED QUANTITIES OF
1,3-DIMETHYLAMYLAMINE
HCl (DMAA),

Defendant,

and

HI-TECH PHARMACEUTICALS,
INC., and JARED WHEAT,

Claimants.

Civil Action No.

1:13-cv-13675-

WBH-JCF

Deposition of James P. Kababick
Washington, DC
Friday, November 18, 2016
9:32 a.m.

Job No. 114994

Reported by: Laurie Donovan, RPR, CRR

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1 James P. Kababick
 2 Deposition of
 3 JAMES P. KABABICK
 4
 5 Held at the offices of:
 6 U.S. Department of Justice
 7 Consumer Protection Branch
 8 450 Fifth Street, NW
 9 Washington, DC 20530
 10
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 12
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 14
 15
 16
 17
 18 Taken pursuant to notice, before
 19 Laurie Donovan, Registered Professional
 20 Reporter, Certified Realtime Reporter, and
 21 Notary public in and for the District of
 22 Columbia.
 23
 24
 25

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1 James P. Kababick
 2 A P P E A R A N C E S
 3 ON BEHALF OF THE PLAINTIFF:
 4 U.S. Department of Justice
 5 450 Fifth Street, NW
 6 Washington, DC 20530
 7 By: Claude Scott, Esq.
 8 and
 9 United States Attorney's Office
 10 Northern District of Georgia
 11 75 Ted Turner Drive
 12 Atlanta, Georgia 30303
 13 By: David O'Neal, Esq.
 14
 15
 16
 17
 18
 19 ON BEHALF OF THE DEFENDANTS:
 20 Epstein Becker & Green
 21 One Gateway Center
 22 Newark, New Jersey 07102
 23 By: Sheila Woolson, Esq.
 24
 25

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1 James P. Kababick
 2 PROCEEDINGS
 3 JAMES PETER PAUL KABABICK,
 4 having been first duly sworn, testified
 5 upon his oath as follows:
 6 EXAMINATION BY COUNSEL FOR DEFENDANT
 7 BY MS. WOOLSON:
 8 Q Good morning.
 9 A Good morning.
 10 Q We met a few minutes ago. We're here
 11 today to take your deposition.
 12 Have you ever had your deposition taken
 13 before?
 14 A No, I haven't.
 15 Q I'm going to give you some basic
 16 instructions about how today is going to proceed.
 17 A Okay.
 18 Q You're going to be answering questions
 19 under oath, and even though we're in an informal
 20 setting, your answers can be used just as if we
 21 were in court, so it's important that you make
 22 sure you hear and understand my questions.
 23 If you don't hear it, let me know, and
 24 I'll repeat it. If you don't understand it, let
 25 me know, and I'll rephrase it. If you answer a

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1 James P. Kababick
 2 A I reviewed the scientific papers and
 3 data presented to me, the documents, and then I
 4 reviewed my expert report again, and yesterday I
 5 met with counsel.
 6 Q Okay, and don't tell me anything about
 7 your discussions with counsel.
 8 Can you give me the benefit of your
 9 educational background.
 10 A Yes. I trained in psychopharmacology in
 11 grad school. I didn't complete my graduate degree
 12 in that. I went into the workforce.
 13 I studied gas chromatography and
 14 separation science with Walter Jennings, who
 15 pioneered modern column chromatography, analytical
 16 column chromatography.
 17 And I've trained in the private sector
 18 extensively in separation science, separating
 19 compounds, analytical chemistry, and also trained
 20 at FDA in botanical microscopy and forensic
 21 microscopy.
 22 Q What is botanical microscopy?
 23 A It's utilizing microscopic examination,
 24 a microscope, to determine identity, authenticity
 25 of botanical ingredients; in our case, used as

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1 James P. Kababick
 2 question, I'm going to assume that you heard it,
 3 understood it, and are answering it to the best
 4 your ability.
 5 It's important that you keep your
 6 responses verbal, because the court reporter can't
 7 take down gestures or nods of the head, and it's
 8 important that I let you finish your answer before
 9 I begin my next question, and likewise you let me
 10 finish my question before you begin your answer,
 11 because the court reporter cannot take down two
 12 people talking at the same time. Well, she can,
 13 but she prefers not to.
 14 And from time to time Mr. O'Neal may
 15 interpose an objection to a question. If he does,
 16 just refrain from answering until the attorneys
 17 have worked it out. He will instruct you whether
 18 or not to answer the question.
 19 Finally, if you need to take a break at
 20 any time, let me know. Other than when a question
 21 is pending, we can take a break.
 22 Do you understand those instructions?
 23 A Yes.
 24 Q What did you do to prepare for your
 25 deposition today?

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1 James P. Kababick
 2 dietary ingredients; and also related to examining
 3 components of materials that might be under the
 4 ability of the eye to see, so you need a
 5 microscope to see.
 6 Q And you said you took graduate courses
 7 in psychopharmacology.
 8 What is your undergraduate degree in?
 9 A Undergraduate, I have a bachelor's of
 10 science in business administration and a
 11 bachelor's of science in psychology.
 12 Q And I take it from your earlier
 13 testimony, you do not have an advanced degree
 14 beyond a bachelor's degree; is that correct?
 15 A I do not have a degree beyond a
 16 bachelor's degree.
 17 Q And can you give me the benefit of your
 18 work history.
 19 A Yes. I have about 23 years of
 20 experience in natural products chemistry,
 21 analytical chemistry, and separation science.
 22 Q When you say you have 23 years of
 23 experience, can you tell me where you gained that
 24 experience?
 25 A Sure. I worked in the private sector

1 James P. Kababick
2 here originally at Chromascentia, which was
3 involved in analysis of essential oils for
4 authenticity, and then formed Flora Research
5 Laboratories in '93, and we started applying the
6 techniques of microscopy and chromatography to
7 testing dietary ingredients of natural products.

8 And I have not only worked extensively
9 in the field but have taken an extensive number of
10 continuing education training courses. Then also
11 I have participated in a lot of scientific society
12 panels, and I teach at university as well.

13 Q And you said initially you worked at
14 Chromascentia?

15 A Yes.

16 Q And you were examining essential oils?

17 A Yes.

18 Q And what techniques were you using to
19 examine the oils?

20 A Gas chromatography and what we call
21 physiochemical analysis.

22 Q What do you mean by "physiochemical
23 analysis"?

24 A That's the analysis of physical
25 properties of the oil -- so density, specific

1 James P. Kababick
2 rotation -- as well as measurements of different
3 classes of compounds through chemical analysis.

4 Q Okay, and while you were at
5 Chromascentia, did you ever have occasion to
6 review any essential oils from -- we'll start off
7 at Geranium plants. We'll keep it simple.

8 A Yes.

9 Q How often did you examine essential oils
10 of Geranium plants while you were at
11 Chromascentia?

12 A I don't know at what interval, but I was
13 analyzing oils daily, and I analyzed a large
14 number of them.

15 Q And when you say you "analyzed" them,
16 what did do you with this analysis? What was it
17 used for?

18 A To characterize the oil for its
19 authenticity as well as to determine the levels of
20 desirable components.

21 Q And you were doing this analysis for
22 customers or clients of the lab?

23 A Both for customers and internally for
24 the company for the research of their line.

25 Q What was their line?

1 James P. Kababick
2 A Essential oils.
3 Q They had their own line of essential
4 oils?
5 A Yes.
6 Q Okay, and when you were doing this
7 analysis, did these -- strike that.

8 When you were doing this analysis, were
9 you provided with the oils themselves as opposed
10 to having to extract the oil from the plant?

11 A Are you speaking to Geranium in
12 particular?

13 Q We can keep it specific to Geranium.

14 A Yes, the oils were provided.

15 Q And do you know from what geographic
16 regions these oils came from?

17 A Yes. They came from Egypt, outside of
18 the Cairo area, as well as China, the Yunnan
19 province. Those are the major ones. There are
20 others, but I don't know all the provinces. It
21 was quite a while back.

22 Q And did you author or coauthor any
23 studies or papers regarding this analysis of
24 essential oils that you did while you were at
25 Chromascentia?

1 James P. Kababick
2 A Is that related only to Geranium?

3 Q Yes.

4 A No, I did not.

5 Q Now, you mentioned that you created
6 Flora Research Labs.

7 Who are the members or owners of Flora
8 Research?

9 A Flora Research Laboratories is owned by
10 myself, and Dana Neal is my partner.

11 Q Is Dana Neal your wife?

12 A Yes.

13 Q It's just the two of you who own the
14 company?

15 A Yes.

16 Q Has it always been just the two of you
17 that owned the company?

18 A Yeah. Originally it was myself, and
19 then both of us.

20 Q Okay. Are you the sole director at
21 Flora Research, or are there other directors?

22 A I'm the only director.

23 Q And who are Flora Research's largest
24 customers currently?

25 A I'm unable to answer that, because I'm

1 James P. Kababick
2 bound to confidentiality under contract with
3 clients.

4 MS. WOOLSON: Okay. This came up
5 earlier this week with Dr. Brown, and what
6 Mr. Scott and I discussed was having the
7 United States go back and see whether or not
8 this information can be provided pursuant to
9 the confidentiality order that's in place in
10 this case.

11 MR. O'NEAL: Okay.

12 MS. WOOLSON: So I would suggest we
13 proceed similarly and see whether you can get
14 that information. If not, we'll have to take
15 whatever necessary steps we have to take with
16 the court.

17 MR. O'NEAL: Sure. I would think
18 this would be handled in whatever way you
19 discussed with Mr. Scott previously. We
20 don't represent him in his individual
21 capacity, and so whatever his contractual
22 obligations are, I have to take him at face
23 value, but certainly we will, you know, with
24 everyone, see what can be done and resolve it
25 in the same manner.

1 James P. Kababick

2 MS. WOOLSON: Okay.

3 BY MS. WOOLSON:

4 Q Just so you understand, I'm not going
5 to simply allow you to refuse to answer the
6 question. We're going to try and take steps to
7 make sure that you can answer the question and do
8 it in a way that does not violate your contractual
9 obligations.

10 As you sit here today, can you tell me
11 if Flora Research Labs does work for any United
12 States governmental agency?

13 A Can you clarify that just a little bit?

14 Q Sure. Does Flora Research do work for
15 the FDA?

16 A We don't do compensated work for the FDA
17 directly. We do work for companies that may have
18 samples in detention and need data packages
19 submitted from private labs. They're called
20 "detention without physical examination."

21 Q And when you say "detention without
22 physical examination," what do you mean?

23 A When a product comes into the United
24 States, it may be subject to an import alert, and
25 if it's subject to an import alert, it's detained

1 James P. Kababick
2 without testing by FDA sometimes, and it's up to
3 the company to show that it meets specifications
4 and is not adulterated. So we do that work.

5 Q And does Flora Research Labs currently
6 do work for the National Institutes of Health?

7 A Not currently.

8 Q Has it in the past?

9 A Yes.

10 Q When is the last time it did work for
11 NIH?

12 A I believe around 2006 we were given a
13 grant to develop some test methodology.

14 Q What was the test methodology?

15 A It was a technique for quantifying
16 benzene in liquid supplements, specifically
17 resulting from the decomposition of the
18 preservative system.

19 Q So we talked about FDA. We've talked
20 about NIH. I'm going to exhaust my vocabulary of
21 acronyms very quickly.

22 Any other agency of the United States
23 government for which Flora Research Labs is
24 currently doing work?

25 A Yes. The US Department of Agriculture's

1 James P. Kababick

2 ag research services.

3 Q Okay, and what do you do for ag
4 research?

5 A We were given a grant to develop some
6 techniques for identity of botanicals using
7 spectroscopy.

8 Q And do you know which botanicals are at
9 issue?

10 A We're actually working on ginseng.

11 Q And how long have you been doing that
12 work, "you" meaning Flora Research Labs?

13 A A few years now.

14 Q So other than FDA, NIH, and the
15 Department of Agriculture, are there any other
16 agencies of the federal government for which Flora
17 Research Labs is currently doing work?

18 A Not that I can recall.

19 Q Are there other agencies of the federal
20 government for which Flora Research Labs has done
21 work in the last ten years?

22 A Not that I can recall.

23 Q And when I asked you earlier about the
24 largest customers, were those customers in private
25 industry or were they in government?

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1 James P. Kababick
 2 A Private industry.
 3 Q Mr. Kababick, would you agree with me
 4 that it's important for a scientist to approach
 5 research impartially?
 6 A Yes.
 7 Q And would you agree with me that it's
 8 important for a scientist to evaluate research
 9 impartially?
 10 A Yes.
 11 (Exhibit 1 was marked for
 12 identification.)
 13 BY MS. WOOLSON:
 14 Q I'm going to show you what's been marked
 15 as Exhibit 1.
 16 Have you seen Exhibit 1 before today?
 17 A Yes, I have.
 18 Q And what is Exhibit 1?
 19 A I'm sorry?
 20 Q What is Exhibit 1?
 21 A It's my expert rebuttal report.
 22 Q And in preparing your expert rebuttal
 23 report, did you speak to anyone other than the
 24 attorneys for the government?
 25 A You mean as far as preparing this

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1 James P. Kababick
 2 assist you?
 3 A No.
 4 Q Did anyone review a draft of the report
 5 other than the attorneys for the United States or
 6 the attorney for your company?
 7 A No.
 8 Q In paragraph 1 of your report where --
 9 you're discussing your qualifications, and you say
 10 you are a "phytoforensic scientist."
 11 What do you mean by "phytoforensic
 12 scientist"?
 13 A Phytoforensic science is the application
 14 of diverse analytical techniques in the evaluation
 15 of natural products and dietary ingredients,
 16 specifically focused on global food safety,
 17 quality.
 18 Q And if I were to go look up the term
 19 "phytoforensic scientist," is that a defined term?
 20 A Yes. Actually, it's a term we developed
 21 for this field that I pioneered, but you'll see
 22 references to it in LCGC Magazine and other
 23 resources.
 24 Q When you say "it's a term we developed,"
 25 who do you mean by "we"?

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1 James P. Kababick
 2 report?
 3 Q Yes.
 4 A Speak to people regarding the nature of
 5 the report or its contents?
 6 Q Yes. Either.
 7 A Not regarding this work, no.
 8 Q Did you tell anyone that you were going
 9 to be an expert witness in this case, other than
 10 the government?
 11 A I've only told people that are being an
 12 expert witness for the DoJ.
 13 Q And who have you told?
 14 A My attorney.
 15 Q And by your attorney, you mean someone
 16 other than the attorneys for the United States?
 17 A Yeah, our company's, yeah, and of
 18 course, staff people that need to know that I'm
 19 out of the office, what's going on.
 20 Q And have you spoken to any colleagues
 21 outside of Flora Research about your expert work
 22 in this case?
 23 A No, I haven't spoken about the expert
 24 work.
 25 Q And in preparing your report, did anyone

Page 21

1 James P. Kababick
 2 A I developed it at the laboratory to
 3 describe the specific and unique approach to
 4 analysis.
 5 Q So this is a term that you created to
 6 describe what you do?
 7 A Yes.
 8 Q You also testified earlier that you were
 9 trained as a -- I think I asked you this --
 10 botanical microscopist.
 11 We talked about that. Sorry.
 12 What is the standardized phytoforensic
 13 approach and the cross-over analytical technique
 14 that you refer to in your report?
 15 A The standardized phytoforensic approach,
 16 or SPA, and the crossover analytical technique, or
 17 CAT, are two techniques for the systematic review
 18 of forensic data relative to this dietary
 19 supplement industry, as well as the analysis of
 20 data involved in the investigation of issues that
 21 stakeholders might be having let's say with a
 22 product formulation challenge, qualifying
 23 materials, things like that.
 24 The standardized approach is the
 25 methodology by which material might be examined,

1 James P. Kababick
2 and crossover analytical technique is the approach
3 to utilize orthogonal methodologies to help form a
4 better picture of what's going on and what
5 approaches might be utilized depending on what
6 data is already at hand.

7 Q So let me see if I understand what you
8 just said.

9 The standardized method approach that
10 you're talking about, standardized phytoforensic
11 approach is an attempt to create sort of a
12 operating procedure by which to approach any
13 phytoforensic examination of a substance, like a
14 number of steps that you would walk through to do
15 the analysis?

16 A It's for specifically -- we're dealing
17 with issues of unknowns or with evaluating a
18 material where routine standard methods aren't out
19 there to answer the question specifically, or
20 where the answer is something that you need to
21 approach in different ways to get a better rounded
22 view of it. It's not really addressing things
23 that are routine and worked out, but more of the
24 emerging and nonroutine things.

25 Q I guess I'm confused then.

1 James P. Kababick
2 How do you have a standardized approach
3 for something that's not routine?

4 A This is the reason we developed this, is
5 that a lot of stakeholders were challenged with
6 this problem of how to approach the unknown, and
7 from years of experience doing this, I organized a
8 flow path for doing that and how we would gather
9 information, review information, design
10 experiments, and continue through that process.

11 Q And what is that flow path?

12 A The flow path? I'll have to refer to my
13 data on that. I wrote up a paper on that, but I
14 don't remember all the steps off the top of my
15 head right now.

16 Q And what's the name of that paper?

17 A It's actually the -- the paper is a --
18 it was actually a poster, standardized
19 phytoforensic approach scientific poster that I
20 presented at AOAC, and then there's a PowerPoint
21 that was presented at the United States
22 Pharmacopeia Dietary Supplements Workshop.

23 Q So this standard approach or this flow
24 path -- excuse me -- is a poster in a PowerPoint,
25 correct?

1 James P. Kababick
2 A Well, I've developed a poster PowerPoint
3 to cover it, to provide resources to others.

4 Q Okay, and this flow path is not
5 incorporated into any study or publication beyond
6 this poster and this PowerPoint, correct?

7 A I'm sorry. I'm not sure I understand.

8 Q The flow path, is it the subject of any
9 publication or paper or article beyond just this
10 PowerPoint and this poster?

11 A I believe it has been addressed in some
12 other articles in the industry educational
13 resources, and I'm actually submitting a paper
14 regarding it to a journal.

15 Q And when did you prepare this poster
16 and/or PowerPoint?

17 A I don't remember the exact date, but
18 about two or three years ago. I'd have to check
19 to be sure exactly.

20 Q And understanding that you don't
21 remember all of the steps of the flow path, what
22 steps do you remember?

23 A The first thing that I outline is
24 collecting information, so a review of the
25 literature, tapping resources like colleagues that

1 James P. Kababick
2 might have a part of the puzzle or part of the
3 understanding, so reaching out to your peers and
4 colleagues and industry in the scientific fields,
5 looking at the scientific literature that's out
6 there, searching publications, including books,
7 and gathering data.

8 So the first step is to gather data and
9 review it, and also in defining exactly what the
10 issue is, and taking that data, putting it
11 together into a cohesive understanding of what's
12 known to date, and then designing experimental
13 tests to approach the problem.

14 Q And is there a particular process that
15 you follow in designing these tests?

16 A Yeah, it depends on what the test is and
17 what the problem is.

18 Q And what's after designing the test?

19 A Conducting the test examinations.

20 Q And after you conduct the test?

21 A Reviewing the data to make a
22 determination of what is found and where that
23 points you, and then you would regroup and
24 determine what next steps need to be taken, either
25 further experiments, whether or not you resolve

1 James P. Kababick
 2 the issue or got the answers to the questions,
 3 make discoveries.
 4 Q So this seems pretty much like the
 5 scientific method that most scientists follow when
 6 they are doing research, correct?
 7 A Basically, yes. The difference is that
 8 a lot of times with these issues, because there
 9 are not canned methods or approaches, a lot of my
 10 colleagues and peers that have come to me and been
 11 stuck or unsure what to do, this provides a
 12 framework of a way to think "outside the box," so
 13 to speak.
 14 Q Okay, and when you talked about -- well,
 15 actually, let me back up.
 16 What part of this flow path is
 17 outside-the-box thinking, in your mind?
 18 A The things that I see a lot of times are
 19 in the designing of experiments that people often
 20 forget or get pigeonholed into thinking a certain
 21 way about what they're going to analyze, so maybe
 22 going directly after some target or analyte, but
 23 that may not provide the answer to the question.
 24 And so I talk about looking at other
 25 things that might be impurities from process or

1 James P. Kababick
 2 involving natural products research for
 3 college-level undergraduates and general grant
 4 applications.
 5 Q And with whom did you serve on that
 6 committee?
 7 A Guido Palli, who is from University of
 8 Chicago Urbana-Champaign, and there were several
 9 medical doctors and academics, statisticians. I
 10 don't remember everybody's name, though.
 11 Q Anybody from NIH?
 12 A I don't recall if there was -- no.
 13 Well, yes. I'm sorry. The chair or person
 14 heading up the committee was an NIH person.
 15 Q Do you know who that was?
 16 A I don't recall offhand.
 17 Q Were there any other government
 18 personnel on the committee that you recall?
 19 A I don't recall if there were.
 20 Q Do you still review grants for NIH?
 21 A Not currently.
 22 Q When did you last review grants for NIH?
 23 A I don't recall the exact time.
 24 Q The last five years, ten years?
 25 A Well, definitely within the last ten

1 James P. Kababick
 2 other aspects of manufacturing or crop production
 3 that might impart knowledge indirectly.
 4 Q And the cross-over analytical techniques
 5 that you were discussing, I think you used the
 6 word "orthogonal."
 7 Do you simply mean by that, using
 8 multiple different techniques in the analysis?
 9 A Yeah, there's different techniques to
 10 approach the analysis.
 11 Q So, for example, liquid chromatography,
 12 mass spectrometry, gas chromatography, that sort
 13 of thing?
 14 A Yes, those could be components.
 15 Q Okay. Looking at your expert report,
 16 which we've marked as Exhibit 1, in paragraph 8
 17 you say, "I served on the National Institutes of
 18 Health R15 and R21 grant committees."
 19 Do you see that?
 20 A Yes.
 21 Q And what was your role on those
 22 committees?
 23 A I was a phytochemistry expert.
 24 Q And what were you reviewing?
 25 A I was reviewing grant applications

1 James P. Kababick
 2 years.
 3 Q And were you compensated for your work
 4 in reviewing NIH grants?
 5 A No. It was volunteer. The
 6 reimbursement for travel expenses was given,
 7 though.
 8 Q And do you currently review grants for
 9 any United States government agency?
 10 A No, I don't.
 11 Q Okay. Now back to the question where
 12 I'm going to mispronounce something.
 13 What is Synutra Pure?
 14 A Is that here in the --
 15 Q No, it's not in your report.
 16 A Synutra Pure is a company that is
 17 involved in the distribution of chondroitin
 18 sulphate.
 19 Q And what is your connection to Synutra
 20 Pure?
 21 A We did some joint research with Synutra
 22 Pure as well as Tampa Bay Analytical Research and
 23 United States Pharmacopeia in investigating an
 24 adulterant found in chondroitin.
 25 Q Who did you work with at Tampa Bay?

1 James P. Kababick
 2 A With Mark Roman, who is deceased at this
 3 time.
 4 Q How about U.S. Pharmacopeia?
 5 A Christy -- I don't remember her last
 6 name. She's an NMR spectroscopist.
 7 Q And who did you work with at Synutra
 8 Pure?
 9 A Weigo, W-E-I-G-O.
 10 Q And other than this work you did on the
 11 chondroitin compound, do you have any other
 12 interest in Synutra Pure?
 13 A We did conduct some analysis on some
 14 chondroitin.
 15 Q And how long ago did you do that work?
 16 A I don't remember the exact date.
 17 Q And how did you come to be involved in
 18 that work?
 19 A You mean the work that I published with
 20 Synutra Pure and USP?
 21 Q Yes.
 22 A Okay. There was an article regarding
 23 the 01. They named the contaminate 01 they were
 24 trying to identify, and I had done a lot of work
 25 on chondroitin sulphate in the industry and

1 James P. Kababick
 2 with me working.
 3 Q And other than that research that you've
 4 talked about, that we've just talked about, did
 5 you do any other work with Synutra Pure?
 6 A Just the couple of samples that we
 7 analyzed for them of chondroitin.
 8 Q And do you or does your wife have any
 9 ownership interest in Synutra Pure?
 10 A No.
 11 Q Do you or your wife have any ownership
 12 interest in any dietary supplement?
 13 A No.
 14 Q Any company that makes dietary
 15 supplements, I should say.
 16 A No.
 17 Q Do you know Paula Brown?
 18 A Yes.
 19 Q Who is she?
 20 A Paula Brown is a scientist in Canada.
 21 She's at British Columbia Institute of Technology,
 22 and she serves on various AOAC committees that
 23 I've been involved with as well, and she's
 24 organized symposia that I've spoken at, things
 25 like that.

1 James P. Kababick
 2 contacted them to talk about the impurity, and it
 3 piqued my interest as a researcher. A lot of our
 4 clients use chondroitin, and they had concerns
 5 about that contaminant, so I felt it would be good
 6 for our company to try to help research and
 7 understand it so we could help our clients test.
 8 So we got involved with them and USP and Tampa Bay
 9 to see if we could help identify it, which we were
 10 able to do and write the paper.
 11 Q What work specifically did your company
 12 do?
 13 A We did a combination of FTIR, infrared
 14 spectroscopy, as well as differential scanning
 15 calorimetry, DSC, and then we also did some
 16 cellulose acetate membrane electrophoresis to
 17 separate the compound.
 18 Q And did you personally do this work, or
 19 did people who work at Flora Research do this
 20 work?
 21 A Both.
 22 Q What did you personally do?
 23 A I actually collected infrared data and
 24 calorimetry data, and I did also the
 25 electrophoresis, but I also had staff involved

1 James P. Kababick
 2 Q Have you authored any papers with her?
 3 A Yes.
 4 Q How many?
 5 A I wrote an article for Nutraingredients
 6 or nutrition -- let me see. I'm trying to
 7 remember the name of that trade publication.
 8 Nutraceuticals World. We wrote a paper together.
 9 I believe we authored some publications together,
 10 but I would have to look it up to be sure.
 11 Q Do you know who Frank Jaksch is?
 12 A Yes.
 13 Q Who is he?
 14 A Frank Jaksch runs ChromaDex.
 15 Q What is ChromaDex?
 16 A They are a company that provides
 17 analytical standards, analytical services and
 18 consulting services, as well as some ingredients
 19 in the industry.
 20 Q And how do you know Mr. Jaksch?
 21 A When he started ChromaDex, he solicited
 22 our business to buy standards, and I knew some
 23 scientists that worked there, and so we did
 24 business together and know each other from
 25 meetings and things like that.

1 James P. Kababick

2 Q When you say "did business together," do
3 you mean anything other than supplying standards?

4 A Yeah, well, we purchased standards from
5 them, from ChromaDex.

6 Q When is the last time you spoke to
7 Mr. Jaksch?

8 A Oh, I would think several years ago, two
9 or three years ago.

10 Q Does your company still buy standards
11 from ChromaDex?

12 A I believe we occasionally do, yes.

13 Q Do you know what standards you buy from
14 ChromaDex?

15 A I know we purchased creatine ethyl
16 ester. I'm not sure what else, but occasionally
17 we will get phytochemical materials or dietary
18 ingredient materials.

19 Q Okay. Do you know who Amy Eichner is?

20 A Yes.

21 Q Who is she?

22 A She's a scientist at USADA.

23 Q That's U-S-A-D-A?

24 A Yes, I believe it's USADA.

25 Q How do you know Ms. Eichner?

1 James P. Kababick

2 A She published a paper, and I've heard
3 her speak at some conferences.

4 Q When you say she published a paper, what
5 paper? I mean obviously it sticks out in your
6 mind, so I want to know why.

7 A Yes, it was a paper on DMAA in Geranium.

8 Q Have you ever discussed that paper with
9 her?

10 A Yeah, I emailed her about that.

11 Q And what was the subject of your email,
12 the substance of your emails, I should say?

13 A Just congratulating her on the paper
14 that -- you know, appreciating that it helped shed
15 more light on the issue.

16 Q And did she publish this paper with
17 anyone else? Did she have coauthors?

18 A I believe she did, yes.

19 Q Do you know who they were?

20 A Not offhand. I would have to check.

21 Q Do you know Joseph Betz?

22 A Yes.

23 Q Who is he?

24 A Joseph Betz is the director of the NIH
25 Office of Dietary Supplements Methods and

1 James P. Kababick

2 Standards Division.

3 Q And how do you know him?

4 A He was my instructor when I was trained
5 at FDA. At that time he was at FDA.

6 Q And what training specifically did you
7 receive from him?

8 A Botanical microscopy.

9 Q And how rigorous -- let me rephrase the
10 question.

11 How long did the training last?

12 A It was a 40-hour training course.

13 Q Over what period of time?

14 A It was one week intensive.

15 Q And other than that training class with
16 Mr. Betz, have you worked with him on anything
17 else?

18 A Yes.

19 Q What?

20 A He's been actively involved in AOAC
21 International, which is a scientific society that
22 I'm a fellow in, and he has been involved in the
23 funding of the various official methods that were
24 contracted by the agency for AOAC for development
25 of dietary supplement testing, and my work as the

1 James P. Kababick

2 chair of the methods committee, as well as
3 participating in symposia that were put together.
4 I've interacted with Joe quite a while.

5 Q You mentioned that the FDA funded, I
6 think you said various official methods that were
7 to be developed by the AOAC.

8 A The NIH had a funding mechanism. I
9 believe it was an interagency NIH/FDA funded
10 mechanism. They contracted with AOAC, which holds
11 official methods which are recognized as
12 enforcement methods, and to develop priority
13 methods for testing supplements.

14 Q So let me make sure I understand.

15 The NIH/FDA interagency funding was
16 provided to the AOAC to develop methods?

17 A Yes.

18 Q And you were part of the AOAC committee
19 that received that funding to develop the methods?

20 A Well, I was a volunteer on the committee
21 that provided the work of review and study. The
22 AOAC funding was to essentially support the
23 infrastructure and mechanism of the organization
24 toward that end.

25 Q And by "organization," you mean the

1 James P. Kababick
 2 AOAC?
 3 A Yes.
 4 Q And who did the actual work, if you
 5 will, of developing those methods?
 6 A It was a variety of sources. Sometimes
 7 there was funding mechanism for somebody to
 8 develop what we call a single lab validated
 9 method. Sometimes there were calls for methods
 10 where people would submit methods, candidate
 11 methods, and sometimes a method would be
 12 considered as a potential viable method, and maybe
 13 after review it was determined additional work was
 14 needed to flesh it out.
 15 So there were a variety of ways those
 16 came in.
 17 Q When you say there was funding for a
 18 single laboratory validation method, did Flora
 19 Research receive any funding for such methods?
 20 A Not through the AOAC mechanism, no.
 21 Q Through some other mechanism?
 22 A Well, the previously disclosed funding I
 23 received from NIH for the benzene study was to
 24 develop a method, single lab method.
 25 Q Did I ask you when you did that work?

1 James P. Kababick
 2 A Yes. I believe it was around 2006. I'd
 3 have to verify.
 4 Q Was that the only NIH funding?
 5 A To my knowledge, yes.
 6 Q You mentioned Mark Roman earlier.
 7 Have you published any papers with Mark
 8 Roman or done any work beyond the chondroitin
 9 studies that we discussed?
 10 A Yes. I worked on the study of a product
 11 called Nucleomaxx, which was a subject of a
 12 clinical trial, and I did some mass spectrometry
 13 as part of that paper -- or poster, I should say.
 14 Q Is that the only other work you've done
 15 with Mr. Roman that you recall as you sit here
 16 today?
 17 A Mark and I did quite a bit of work over
 18 the years together, and I believe there were some
 19 other papers published. We worked extensively
 20 together on AOAC committees, since we both served
 21 on the Committee K.
 22 Q And what is Committee K?
 23 A That's the methods committee on dietary
 24 supplements. And then we served on various expert
 25 review panels in AOAC.

1 James P. Kababick
 2 Q Do you have any patents in your name?
 3 A I do not.
 4 Q Are you a co-author of any patents?
 5 A No.
 6 Q Earlier this morning you mentioned DMAA.
 7 What is DMAA?
 8 A DMAA, as I use the term, refers to the
 9 compound methylhexaneamine.
 10 Q And just so we're all on the same page
 11 for the duration of the deposition, if I refer to
 12 this as "DMAA," you will understand that to be
 13 methylhexaneamine?
 14 A Yes.
 15 Q I just find it easier for me to say DMAA
 16 than all those letters.
 17 A Sure.
 18 Q The other thing is, are you familiar
 19 with the term "Pelargonium graveolens"?
 20 A Yes.
 21 Q Are you comfortable if we refer to that
 22 as Geranium?
 23 A It is a Geranium.
 24 Q Okay. So we'll just refer to that as
 25 Geranium. If during the course of your deposition

1 James P. Kababick
 2 for some reason you need to distinguish among
 3 types of Geranium, let me know, but otherwise I'm
 4 going to assume, if we're talking about Geranium,
 5 we're talking about Pelargonium graveolens. Okay?
 6 A Okay.
 7 Q Thank you.
 8 A Before we go further, would it be okay
 9 if I used the restroom real quick?
 10 MS. WOOLSON: Sure.
 11 (Whereupon, a short recess was
 12 taken.)
 13 (Exhibit 2 was marked for
 14 identification.)
 15 BY MS. WOOLSON:
 16 Q When we broke, we talked about some
 17 shorthand that we were going to use for the day,
 18 at least to try to use for the day to make things
 19 a little more straightforward.
 20 How many years, Mr. Kababick, have you
 21 been trying to get DMAA banned?
 22 MR. O'NEAL: Object to the form.
 23 THE WITNESS: I haven't been trying
 24 to get DMAA banned.
 25

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1 James P. Kababick
 2 BY MS. WOOLSON:
 3 Q No?
 4 A No.
 5 Q Let me show you what's been marked as
 6 Exhibit 2.
 7 (Witness peruses document.)
 8 THE WITNESS: Okay.
 9 BY MS. WOOLSON:
 10 Q Have you seen Exhibit 2 before?
 11 A Pardon me?
 12 Q Have you seen Exhibit 2 before?
 13 A Not as this exhibit, no.
 14 Q Okay. Do you recognize Exhibit 2 as, in
 15 part, an email that you sent regarding DMAA?
 16 A It appears to be so, yes.
 17 Q And this was in January of 2012,
 18 correct?
 19 A Yes, that's the set date on here.
 20 Q And it says "from James Neal Kababick to
 21 James Neal Kababick."
 22 Do you see that?
 23 A Yes.
 24 Q To whom did you send this email other
 25 than yourself?

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1 James P. Kababick
 2 MS. WOOLSON: As opposed to
 3 "formally"?
 4 THE WITNESS: Yes, formerly.
 5 Currently he's at --
 6 MR. O'NEAL: I don't think anybody
 7 is informally at FDA.
 8 BY MS. WOOLSON:
 9 Q Do you know why you would have been
 10 sending to Mr. Fabricant information about DMAA?
 11 MR. O'NEAL: Object as to form.
 12 Assumes a fact not in evidence.
 13 THE WITNESS: Could you ask the
 14 question again, please.
 15 BY MS. WOOLSON:
 16 Q Sure.
 17 Do you know why you would have been
 18 sending to Mr. Fabricant information on DMAA?
 19 A I don't recall the exact nature of this
 20 communication and exactly who it went to.
 21 Q In the past have you sent information to
 22 Mr. Fabricant regarding DMAA?
 23 A I actually don't recall. I have
 24 communicated with him when he was at FDA on
 25 various subjects.

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1 James P. Kababick
 2 A I don't recall, actually.
 3 Q If you look at the email at the top of
 4 the page, it appears that somehow your
 5 communication went to Daniel Fabricant.
 6 Do you see that?
 7 A You mean right here?
 8 Q Yeah, in the middle. Directly above the
 9 "James Neal Kababick to James Neal Kababick,"
 10 there is a to-from that says "from Daniel
 11 Fabricant."
 12 Do you see that?
 13 A Where it looks like this is part of
 14 something he sent?
 15 Q Yes.
 16 A Yes.
 17 Q Who is Daniel Fabricant?
 18 A He is the CEO of the Natural Products
 19 Association.
 20 Q Is he also an FDA employee?
 21 A He was formally [sic].
 22 Q And do you know why --
 23 MR. O'NEAL: Did you mean
 24 "formerly"?
 25 THE WITNESS: Yeah, he was at FDA.

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1 James P. Kababick
 2 Q And as you sit here today, you can't
 3 recall why you sent this email or to whom you sent
 4 this email?
 5 A No. No, I can't.
 6 Q And if we were to look at your email in
 7 its native format, would we be able to see if you
 8 blind-copied people on this email?
 9 A I'm not sure I understand.
 10 Q Do you know what a blind copy is?
 11 A Yeah, I do, but what's the "native
 12 format"?
 13 Q It's a format in which you can look at
 14 emails. It preserves all the original data.
 15 Let me rephrase the question.
 16 A Okay.
 17 Q Was it your practice to send emails to
 18 colleagues where you BCC'd them instead of CC'ing
 19 them?
 20 A Sometimes.
 21 Q Why?
 22 A If I was sending emails to more than one
 23 party, and those parties, for one reason or
 24 another, were distinct for some reason. For
 25 instance, maybe a communication that would be

1 James P. Kababick
2 relevant to two clients, but I wanted to protect
3 the clients' confidentiality, I might BCC them; or
4 if I'm not wanting to disclose an email chain,
5 sharing email addresses with everybody, because I
6 don't know if it's okay to give other email
7 addresses out, I might BCC them.

8 Q And when you sent this email that we're
9 talking about, was the FDA or Mr. Fabricant a
10 client?

11 A No, no. He's not a client.

12 Q And to whom -- to whom else other than
13 Mr. Fabricant may you have sent -- strike that.

14 Do you recall sending emails regarding
15 DMAA to other people?

16 A I'm sure I did, yes.

17 Q And do you know who those people are as
18 you sit here today?

19 A I may have communicated with Roy Upton
20 at American Herbal Pharmacopeia and Mark
21 Blumenthal at American Botanical Council, and I'm
22 sure I dialogued with probably Ikhlas Khan or
23 others, but exactly who, I don't recall.

24 Q And what were the circumstances under
25 which you were corresponding with Mr. Upton

1 James P. Kababick
2 regarding DMAA?

3 A I don't recall the specific details.

4 Q What about Mr. Blumenthal; what were the
5 circumstances under which you were corresponding
6 with him about DMAA?

7 A I believe that we were discussing the
8 DMAA in regard to the botanical adulterants
9 program at ABC.

10 Q And did you do any work for ABC
11 regarding the botanical adulterants program?

12 A I actually am on the board currently,
13 the scientific advisory board, and I, prior to
14 that, have ongoingly provided peer review and
15 input on various botanical-related matters for
16 educational papers that they do.

17 Q And what about Dr. Khan; what is the
18 context in which you were corresponding with him
19 regarding DMAA?

20 A I don't remember the specifics of our
21 correspondence. I do remember that I addressed
22 some critiques of a paper that I read on DMAA on
23 Geranium, and I've had ongoing communications with
24 Dr. Khan's group regarding various articles and
25 projects that I've done where I've been seeking

1 James P. Kababick
2 input or papers, reprints, things like that.

3 Q And the critique of this paper that you
4 referred to, do you know whose paper it was?

5 A I believe it was the Li paper, the first
6 Li paper.

7 Q And what other -- you said you had other
8 correspondence with Dr. Khan regarding DMAA. What
9 other projects were you working on that you would
10 have been corresponding with him about DMAA?

11 A Well, I don't know if I had other
12 correspondence regarding DMAA with Dr. Khan. I
13 remember that communication, but I've had
14 communication with him regarding various
15 botanicals.

16 Q What botanicals?

17 A Currently we've been dialoguing
18 regarding ginkgo, and I've also corresponded with
19 him regarding acacia, and I'm trying to think what
20 else.

21 I know there's other related matters,
22 but I don't recall offhand.

23 Q Okay, and when you say you're
24 "dialoguing with him" about these botanicals, what
25 do you mean? Are you asking him for help? Is he

1 James P. Kababick
2 asking you for help? What's the nature of the
3 discussions?

4 A Usually because their group does a lot
5 of publishing and research, I will inquire
6 regarding papers that they published to get
7 reprints or check regarding questions I might have
8 about things to see if they've examined those
9 things.

10 So I've spoken with his team off and on
11 regarding different things.

12 Q And when is the last time you had
13 communications with Dr. Khan's group?

14 A I don't remember exactly, but I would
15 say within the last 60 days.

16 Q And was this about acacia or ginkgo?

17 A I believe about ginkgo.

18 Q Anything else?

19 A I don't recall offhand.

20 Q Did you ever review Dr. Khan's expert
21 report in this case?

22 A Yes, I did.

23 Q Did you speak to Dr. Khan about his
24 expert report?

25 A No, I haven't.

1 James P. Kababick

2 Q Did you speak to anybody in Dr. Khan's
3 group about his expert report?

4 A No.

5 Q Going back to Exhibit 2 --

6 A That's this one?

7 Q That's the email.

8 A Okay.

9 Q If I could draw your attention to the
10 second page of the email and the third paragraph
11 down, you say, "I can only hope that FDA is
12 drawing back the bow string on this and not
13 ignoring what I think is a blatant attempt to sell
14 yet another pharmaceutical drug dressed up as a
15 dietary supplement."

16 Do you see that?

17 A Yes.

18 Q What did you mean?

19 A I believe -- and this was several years
20 ago, but I believe what I was addressing here was
21 the use of large amounts of DMAA in products where
22 it was claimed to be all naturally isolated from
23 Geranium.

24 Q And what is it you wanted FDA to do?

25 A I was hoping that they would look into

1 James P. Kababick

2 the matter further and make a determination on
3 whether or not this is a dietary supplement or not
4 a dietary supplement. A lot of clients were on
5 the fence on what to do about this.

6 Q And when you say "I completely support
7 Health Canada's position on this," what was Health
8 Canada's position?

9 A I know that their evaluation of the Ping
10 paper was that it was not an acceptable support of
11 naturally occurring DMAA in Geranium. I don't
12 remember the other information from Health Canada.

13 Q Do you know whether, at the time of this
14 email, Health Canada had ruled that DMAA was not
15 permitted to be sold as a dietary supplement?

16 A I don't recall.

17 Q Now, you go on to say, "Despite offers
18 to analyze Geranium stem and leaf for free to see
19 if it really has this compound in it, no takers
20 have shown up yet."

21 Do you see that?

22 A Yes.

23 Q Where did you make these offers?

24 A I actually put out a call for material
25 to ABC and American Herbal Pharmacopeia, who are

1 James P. Kababick

2 well connected in the industry, to see if we could
3 get material, and I let it be known that I would
4 be interested in looking at that material in its
5 native form.

6 Q And to whom did ABC or -- the other
7 company whose name I just forgot.

8 A AHP.

9 Q AHP. Thank you.

10 To whom did they send that request?

11 A I'm not sure.

12 Q And so is it your testimony that as of
13 the date of this email, no one had responded to
14 your request for material?

15 A I don't recall at the date of this email
16 anybody offering to provide live plant material or
17 dried whole pieces.

18 Q Did you ask Dr. Khan or Dr. ElSohly for
19 plant material?

20 A I don't recall if I did, actually.

21 Q Did you ask Dr. Li for a sample of plant
22 material?

23 A I do not think I did, but I don't recall
24 exactly.

25 Q Did you ask Drs. Fleming or Simone for

1 James P. Kababick

2 plant material?

3 A No.

4 Q Was there some reason why you couldn't
5 get your own plant material?

6 A You mean as far as obtaining my own
7 Geranium?

8 Q Mm-hmm.

9 A What I was asking for was material in
10 trade that was being used by manufacturers to
11 extract the DMAA.

12 Q What do you mean "material in trade"?

13 A The source material that manufacturers
14 claim that they were extracting the DMAA from,
15 so I wanted to --

16 Q What was the source material?

17 A Well, they claimed Geranium stem and
18 some oil, so I wanted to get the material they
19 were using before I did the extraction so I could
20 look at it.

21 Q Okay, and I go back to my original
22 question, which was: Was there some reason why
23 you couldn't have gotten your own Geranium stem or
24 oil?

25 A I did not have the information on who

1 James P. Kababick
 2 the manufacturers were in China that were making
 3 it.
 4 Q Did you ask Dr. Khan, Dr. ElSohly?
 5 A I don't recall.
 6 Q Did you ask Dr. Li?
 7 A I don't think I did, but I don't recall.
 8 Q Did you ask Dr. Simone and Dr. Fleming?
 9 A No.
 10 Q Did you ask anyone?
 11 A Yes, I believe I did.
 12 Q Who?
 13 A I don't recall.
 14 Q As we sit here today, have you run any
 15 studies on Geranium plants since the date of this
 16 email?
 17 A Could you be more specific?
 18 Q No, I don't think I can be.
 19 A What do you mean by "studies"?
 20 Q Have you analyzed any Geranium plants
 21 for DMAA since the date of this email?
 22 A I have analyzed some Geranium plant
 23 product, but I don't recall the specifics.
 24 Q What do you mean you "analyzed some
 25 Geranium plant product"?

1 James P. Kababick
 2 plants since the date of this email?
 3 A Not whole plant material. Not that I
 4 can recall at least.
 5 Q And how many oils did you analyze?
 6 A Between the time of this?
 7 Q Between the time of Exhibit 2 and today.
 8 A I am not sure.
 9 Q Can you estimate?
 10 A At least a dozen or two.
 11 Q And how many extracts did you analyze?
 12 A That I don't recall at all.
 13 Q And when you did this analysis on the
 14 dozen or so, one to two dozen oils, what
 15 specifically were you looking for?
 16 A I was looking at the composition for
 17 various markers that are used in evaluating the
 18 quality of the oil, as well as looking for any
 19 compounds that would be considered synthetic.
 20 Q And when you say you were looking at
 21 markers, what markers?
 22 A Essential oil constituents, like
 23 alcohols, terpenes, oxygenated sesquiterpenoids,
 24 aldehydes, esters.
 25 Q Did you look specifically for DMAA?

1 James P. Kababick
 2 A Well, I've analyzed essential oil
 3 obtained from Geranium and I've analyzed some
 4 extracts, but I don't recall the details of the
 5 specifics who it was from. I know the oil was in
 6 regard to authentication. The extract powders, I
 7 don't recall the nature of the analysis.
 8 Q And when did you do these analyses?
 9 A I don't recall the exact date.
 10 Q Who were they for?
 11 A These were for clients.
 12 Q And I suppose you won't tell me the name
 13 of the clients.
 14 A I'm bound by confidentiality.
 15 Q Speaking of that, we'll take it up.
 16 And when you say you analyzed the
 17 Geranium plants, how did you analyze them?
 18 Actually, I take it back.
 19 You said oil and extracts.
 20 A Yes.
 21 Q How did you analyze the oil and
 22 extracts?
 23 A Using gas chromatography and mass
 24 spectrometry, GC/MS.
 25 Q And have you analyzed any Geranium

1 James P. Kababick
 2 A In some cases, yes.
 3 Q How many cases?
 4 A I don't recall offhand exactly how many
 5 cases.
 6 Q Do you recall the results?
 7 A Yes. As far as I know, I don't recall
 8 finding it in any oils that I was able to
 9 authenticate as all natural.
 10 Q Where did these oils come from?
 11 A Clients submitted them from their
 12 producers or brokers, buyers.
 13 Q Do you know the geographic origin of the
 14 oils?
 15 A No.
 16 Q And when you did the GC mass spec
 17 analysis, what were the conditions?
 18 A The GC conditions?
 19 Q Both GC and mass spec.
 20 First of all, what did you do to the oil
 21 before you analyzed it as GC mass spec?
 22 A It was diluted in a solvent and then
 23 injected directly.
 24 Q What solvent?
 25 A We usually use ethanol for Geranium.

1 James P. Kababick

2 Q And what were the column conditions?

3 A I don't recall the exact column
4 conditions, but we replicated the atom's GC/MS
5 essential oil conditions, and then we also ran a
6 second condition which used a lower starting
7 temperature and solvent delay so that we could
8 look at early eluting compounds.

9 Q And what was the column temperature on
10 the second set of conditions?

11 A I don't recall exactly.

12 Q During any of these analyses that you
13 did on the Geranium oils, did you attempt to
14 replicate the conditions in the Li or Fleming
15 studies?

16 A I don't recall that I did.

17 Q And same question for the extracts that
18 you analyzed; what steps did you take before you
19 did the GC mass spec analysis?

20 A Those samples were extracted in an acid
21 base extraction cleanup and then placed into ethyl
22 acetate or chloroform and analyzed as freebase
23 forms.

24 Q And what were the geographic origins of
25 the extracts?

1 James P. Kababick

2 A The extracts were -- the country of
3 origin claim was China.

4 Q Do you know what province in China?

5 A No.

6 Q When you analyzed the extracts, what
7 were you looking for?

8 A In the extracts I was looking for DMAA.

9 Q And what were the results?

10 A There were some samples that had it and
11 some samples that didn't.

12 Q How many samples had it, if you recall?

13 A I don't recall, to be honest.

14 Q And again, the extracts were work that
15 you were doing for a client?

16 A Yes. They were commercial samples being
17 represented as extracts from Geranium.

18 Q So getting back to Exhibit 2, you did
19 not attempt to obtain samples yourself of Geranium
20 plants, oils or extracts to study, correct?

21 MR. O'NEAL: Object to the form.

22 THE WITNESS: Sorry. Would you
23 repeat the question.

24 MS. WOOLSON: Can you read it back.
25

1 James P. Kababick

2 (Whereupon, reporter reads
3 requested material.)

4 THE WITNESS: Well, actually, I
5 did. I tried to get some from industry, so I
6 put out a call for them.

7 BY MS. WOOLSON:

8 Q Let me rephrase the question.

9 You did not make any attempt yourself to
10 go gather samples of Geranium plants, oils or
11 extracts beyond this call you made to industry?

12 A Actually, I did contact or had my
13 administrator contact some vendors to see if they
14 would send us some material.

15 Q Which vendors?

16 A I don't recall offhand, to tell you the
17 truth.

18 Q Did they send you materials?

19 A One company at least sent a sample of
20 their DMAA material.

21 Q When you say DMAA material, are you
22 talking about a standard?

23 A Well, it's supposed to be a Geranium
24 extract, but it was a white crystalline powder,
25 nearly pure.

1 James P. Kababick

2 Q And who was the vendor?

3 A I don't recall the vendor offhand.

4 Q And did you test this extract?

5 A Yes.

6 Q And beyond that extract, did you receive
7 any other material from any other vendors?

8 A Not that I recall. I may have, but I
9 just don't remember that far back.

10 Q And this was about the 2012 time period?

11 A I don't know exactly when it was, but I
12 know it was during that time I was looking into
13 this matter.

14 Q The last paragraph on Exhibit 2, you
15 say -- well, you reference "peer-reviewed papers."
16 Do you see that, "peer-reviewed publications"?

17 A Where is it?

18 Q The last paragraph.

19 A 37 years of peer-reviewed publications?

20 Q Yes. I'm asking you about the terms
21 "peer-reviewed publications" and "peer-reviewed
22 papers."

23 Do you see where you use those terms?

24 A Yes.

25 Q What do you mean by peer-reviewed papers

1 James P. Kababick
2 or publications?

3 A These were publications that are
4 reviewed by scientific peers that have expertise
5 in the subject matter area and are recognized as
6 reliable scientific publications.

7 Q What do you mean by "reliable scientific
8 publications"?

9 A That the journal has a high impact
10 rating, meaning that there's recognition by a
11 larger body of scientists as to the quality of the
12 journal and its editorial scrutiny.

13 Q And what do you know about the
14 peer-reviewed process for the publication -- I
15 think it's called Analytical Chemistry Insights.

16 A I would have to check that journal
17 again. I don't remember the exact details on that
18 one.

19 Q So as you're sitting here today, you
20 don't know whether it's peer-reviewed or not?

21 A No. I don't recall.

22 Q All right. In paragraph 15 of your
23 report you talk about the Ping paper.

24 (Witness peruses document.)

25 THE WITNESS: Yes.

1 James P. Kababick

2 (Exhibit 3 was marked for
3 identification.)

4 BY MS. WOOLSON:

5 Q I'm going to show you what's been marked
6 Exhibit 3. Take a look at that.

7 (Witness peruses document.)

8 MR. O'NEAL: For the record, is
9 this a complete version of the document?

10 MS. WOOLSON: I believe it is.

11 MR. O'NEAL: Okay.

12 (Witness peruses document.)

13 THE WITNESS: Yes.

14 BY MS. WOOLSON:

15 Q And do you recognize Exhibit 3?

16 A It looks like it could be the Ping
17 paper.

18 Q Okay. What is the molecular formula for
19 DMAA, if you know?

20 A Offhand? I'd have to look it up to be
21 sure.

22 Q Okay. If I told you that it was
23 C7H17IN, does that make sense?

24 A That could be the formula.

25 Q Do you know the molecular weight?

1 James P. Kababick

2 A 115 is the nominal mass.

3 Q And you would agree with me that in the
4 chart of compounds listed as being detected in the
5 Ping paper, that #30 has a mass of 115, correct?

6 A Yeah, except on my copy the table names
7 and everything are blacked out.

8 Q Well, I apologize. That's how it --
9 that's how we got it. That's how it printed out.
10 It's blacked out on mine, too.

11 A Okay.

12 Q The Ping paper was in 1996, correct?

13 A Yes, I believe so. Yes.

14 Q And would you agree with me that
15 analytical chemistry has been made advances in the
16 last 20 years since 1996?

17 A Is there a specific area you're speaking
18 to?

19 Q In terms of precision, limits of
20 detection, overall ability to separate and detect
21 compounds?

22 A In some cases, yes, but not really in
23 precision and accuracy.

24 Q All right. Then you tell me in what
25 ways analytical chemistry has advanced since 1996.

1 James P. Kababick

2 A Computerized data acquisition has
3 changed, so the software has been evolving, and
4 also mass spectrometry has become more mainstream
5 in that there are different types of mass
6 spectrometers, including LCMS, that are now
7 routinely found in analytical labs, things like
8 that.

9 Q Okay. What is more sensitive, mass spec
10 or NMR?

11 A It depends on the experiment.

12 Q Well, in terms of -- let me put it this
13 way.

14 In terms of detecting a trace quantity
15 or trace concentration of an analyte where you
16 have very low mass recovery.

17 A When you say "low mass recovery" --

18 Q So, for example, if I have a sample that
19 is ten grams versus a sample that is ten
20 micrograms, would NMR be better or worse for the
21 10 microgram sample than mass spec?

22 A Just to make sure that I understand, do
23 you mean if you were trying to analyze the ten
24 micrograms and it was one compound?

25 Q Well, all right. That's a fair point.

1 James P. Kababick
 2 Let me rephrase the question.
 3 On average, what's the minimum amount of
 4 mass that you need for NMR to run the sample?
 5 A It depends on the type of NMR that
 6 you're using. If you have an advanced CryoProbe
 7 NMR, you could work with microgram samples.
 8 Q And how common are advanced CryoProbe
 9 NMRs?
 10 A They're pretty routine at universities
 11 now, and several analytical labs have that service
 12 as well.
 13 Q And if you didn't have an advanced
 14 CryoProbe NMR, how much sample would you need?
 15 A It really depends on the experiment, the
 16 pulse rate, relaxation delay, and what you are
 17 looking at, C-13 proton, et cetera.
 18 Q Have you reviewed as part of your work
 19 in this case the studies that were performed by
 20 Dr. Khan and Dr. ElSohly, Dr. Lisi, Dr. Zhang and
 21 Dr. Di Lorenzo?
 22 A I reviewed papers published by Li and
 23 ElSohly and Khan and others. I believe one of
 24 those was the Zhang paper as well.
 25 Q Okay. In paragraph 16 of your report

1 James P. Kababick
 2 you say that "Drs. Lisi, Zhang, Di Lorenzo, Austin
 3 and ElSohly used validated and adequately
 4 sensitive methods."
 5 Do you see that?
 6 A Yes.
 7 Q Are you opining that Drs. Li and Fleming
 8 did not use adequate -- did not use validated and
 9 adequately sensitive methods?
 10 A No.
 11 Q To your knowledge, based on your review
 12 of the publications -- and we'll take just the
 13 ElSohly publications first for purposes of this
 14 question. How did Drs. ElSohly and Khan get their
 15 samples?
 16 A I would have to review the paper. I
 17 don't recall exactly offhand.
 18 Q Do you think they went out to China and
 19 picked Geranium plants themselves?
 20 A I don't know that they did that.
 21 Q Do you think that they had somebody from
 22 China send them plants?
 23 A I don't know.
 24 Q And if I asked you the same questions
 25 regarding Dr. Lisi, Dr. Zhang and Dr. Di Lorenzo,

1 James P. Kababick
 2 would your answer be the same?
 3 A Yeah, I don't know the exact details of
 4 how they obtained their samples, the specifics.
 5 Q And do you know the exact details of the
 6 samples' growing conditions, soil, anything about
 7 how the plant is grown?
 8 A For --
 9 Q Let's say Dr. ElSohly and Dr. Khan
 10 studies.
 11 A I believe in one of their papers they
 12 discussed some of the production of material grown
 13 at the University of Mississippi.
 14 Q And did they give details about the soil
 15 conditions in that paper?
 16 A They provided some information, but I
 17 don't recall the specifics.
 18 (Exhibit 4 was marked for
 19 identification.)
 20 (Exhibit 5 was marked for
 21 identification.)
 22 BY MS. WOOLSON:
 23 Q So I've marked as Exhibit 4 the
 24 ElSohly/Khan et al. study of 2012 and Exhibit 5 as
 25 the ElSohly/Khan et al. study of 2014.

1 James P. Kababick
 2 (Witness peruses documents.)
 3 THE WITNESS: Okay.
 4 BY MS. WOOLSON:
 5 Q Okay. Now that you've had a chance to
 6 look at Exhibits 4 and 5, do you recognize them as
 7 the 2012 and 2014 ElSohly studies?
 8 A Yes.
 9 Q Looking at Exhibit 4, which is the 2012
 10 study, what does the study say about how the
 11 samples were obtained, the plant samples were
 12 obtained?
 13 A They were obtained from various sources,
 14 Institute of Integrative Medicine and then also
 15 the Medicinal Plant Garden at the university,
 16 and -- let's see here. In both cases they were
 17 authenticated by experts.
 18 Q And when you say "they were
 19 authenticated by experts," why do you say they're
 20 experts?
 21 A The research scientist at NCNPR,
 22 National Center for Natural Products Research, and
 23 the other scientist is the head of the Plant
 24 Biotechnology Division.
 25 Q So you mean they have Ph.Ds and they

1 James P. Kababick
2 authenticated the plants, basically?
3 A No, I'm not saying it's because they
4 have Ph.Ds. It's because they are in plant
5 authentication as part of their work, from my
6 understanding.
7 Q Okay, and is your understanding from
8 anything other than the paper?
9 A Well, generally botanists are -- botany
10 is a science, and it includes plant identification
11 through features.
12 Q Okay. I'm just asking.
13 So you're basing your statement that
14 these gentlemen were experts -- and I'm assuming
15 they're gentlemen; that may not be correct -- but
16 based on the information in the paper as opposed
17 to external sources. That's all I'm asking you.
18 A To the best of my knowledge, yes.
19 Q Okay. Now, does anything in Exhibit 4
20 tell you anything about the growing conditions,
21 the soil, the water, the air, the nutrients,
22 anything?
23 A No, I don't believe it does.
24 Q And so these samples in Exhibit 4 of the
25 plants were obtained by third parties for

1 James P. Kababick
2 collection.
3 Q Well, not all the plants came from
4 NCNPR, correct?
5 A Right.
6 Q Okay. So we can at least agree that the
7 plants that did not come from the NCNPR were
8 obtained by a third party, correct?
9 A I actually don't know, because I don't
10 see where it says -- it says there were materials
11 from sources, but I don't know how those materials
12 were collected.
13 Q Okay. So that information is not in
14 this paper, to the best of your ability to tell?
15 A Yeah. Currently looking at it, I don't
16 see that.
17 Q Now, it's not unusual for samples to be
18 obtained by a third party and sent to a lab for
19 research, is it?
20 A You mean like in general?
21 Q Like in general, yes, like for plants to
22 be obtained by a third party and sent to a lab to
23 be researched.
24 A Yeah, that happens.
25 Q Have you yourself ever studied plants

1 James P. Kababick
2 Drs. ElSohly and Khan, correct?
3 A It appears so.
4 Q Exhibit 5. What information in Exhibit
5 5 is there about the source of the plant samples
6 that were studied?
7 A The accession numbers, and for those in
8 the NCNPR collection, they're referenced under
9 those.
10 Q And does anything in Exhibit 5 tell you
11 anything about the growing conditions, soil,
12 water, nutrients of those plants?
13 A Not that I see offhand.
14 Q If I could just have you flip back to
15 Exhibit 4 for a second, where did Drs. Khan and
16 ElSohly get their reference sample of DMAA?
17 A They indicate that they obtained the
18 standard from Sigma-Aldrich.
19 Q And again, I'm sorry to make you flip
20 back and forth, but with respect to Exhibit 5, the
21 samples were obtained by third parties and
22 provided to Drs. Khan and ElSohly, correct?
23 A It indicates that they were obtained by
24 NCNPR, but that's the group which Dr. Khan leads,
25 so I'm not sure what his involvement was in the

1 James P. Kababick
2 that were gathered by a third party and sent to
3 you for research?
4 A Yes.
5 Q Now, what, if anything, did Drs. ElSohly
6 and Khan do in Exhibit 4 and Exhibit 5 to
7 determine if their plant material was contaminated
8 in any way?
9 A I'm not sure that they did any testing
10 for contamination.
11 (Exhibit 6 was marked for
12 identification.)
13 (Witness peruses document.)
14 THE WITNESS: Is this 2012 paper
15 part of this document at the back?
16 BY MS. WOOLSON:
17 Q No. Sorry. Just a copying error.
18 That's the next exhibit you're going to get, the
19 Di Lorenzo paper. You should never let attorneys
20 make photocopies.
21 (Witness peruses document.)
22 THE WITNESS: Yes.
23 BY MS. WOOLSON:
24 Q So you have in front of you Exhibit 6.
25 Do you recognize Exhibit 6?

1 James P. Kababick
 2 A It appears to be a paper from the Drug
 3 Testing and Analysis Journal.
 4 Q And it's by Dr. Lisi et al., correct?
 5 A Yes.
 6 Q Have you read this paper before?
 7 A I think I recall reading this paper.
 8 Q Okay, and this paper involved Geranium
 9 oil and Geranium -- Geranium oil and supplements,
 10 correct?
 11 A It did involve Geranium oil, and let me
 12 see here. Yes, and supplements.
 13 Q And where did the Geranium oils come
 14 from? What was their origin?
 15 A They list their origins as France,
 16 Egypt, and then a -- yeah, just France and Egypt
 17 right here in the table.
 18 Q And do you see on -- I just lost my
 19 place. Oh, under "Experimental" on page 2 of the
 20 report, these Geranium oils were purchased over
 21 the internet, correct?
 22 A Yes.
 23 Q Okay, and what steps, if any, did
 24 Dr. Lisi et al. take to determine if the Geranium
 25 oil samples were contaminated?

1 James P. Kababick
 2 A Yes.
 3 Q Where do the plant samples in the
 4 Di Lorenzo study come from?
 5 A They were obtained, it says, at a plant
 6 nursery.
 7 Q And what information does the paper have
 8 about the growing conditions, soil, nutrients,
 9 water that were used on the plants?
 10 A They don't indicate that in the paper.
 11 Q And what steps did Di Lorenzo et al.
 12 take to see if their plant samples were
 13 contaminated in any way?
 14 A I don't know.
 15 Q Have you ever had conversations with
 16 Dr. Khan -- well, strike that.
 17 Several times during the course of this
 18 morning, I mentioned Dr. ElSohly.
 19 Do you know Dr. ElSohly?
 20 A Yes, I've met him before.
 21 Q Okay, and when is the last time you
 22 spoke to Dr. ElSohly?
 23 A Last year I was at a conference at ASP,
 24 and that was held at the University of Mississippi
 25 campus, and we talked about cannabinoid chemistry

1 James P. Kababick
 2 A I don't know that they took any steps.
 3 They don't discuss that here.
 4 (Exhibit 7 was marked for
 5 identification.)
 6 BY MS. WOOLSON:
 7 Q Let me show you what's been marked as
 8 Exhibit 7. Take a look at that.
 9 (Witness peruses document.)
 10 THE WITNESS: Okay.
 11 BY MS. WOOLSON:
 12 Q So showing you Exhibit 7, have you seen
 13 that before?
 14 A I think I did see this before.
 15 Q Okay. If it's helpful --
 16 A There's actually another paper attached
 17 to it, by the way.
 18 Q Oh, okay. There you go. Not anymore.
 19 A So it's just this particular paper,
 20 right?
 21 Q It's the Di Lorenzo paper, correct?
 22 A Yes.
 23 Q If it's helpful, if you look at
 24 paragraph 16 of your report, you refer to the
 25 Di Lorenzo study.

1 James P. Kababick
 2 and analysis of cannabinoids.
 3 Q And when is the last time you spoke to
 4 Dr. Khan or Dr. ElSohly about DMAA?
 5 A I don't recall. I don't know if I've
 6 ever spoken to Dr. ElSohly about it, and for
 7 Dr. Khan it would have been a while back.
 8 Q Okay, and would your answer be the same
 9 regarding email communication as opposed to just
 10 verbal communication?
 11 A Yeah, I don't recall any emails recently
 12 about that.
 13 Q Have you ever spoken to Dr. ElSohly or
 14 Dr. Khan about what we've marked as Exhibit 5, the
 15 2014 multi-centre study?
 16 A I may have spoken with Dr. Khan about
 17 this. I don't recall speaking with Dr. ElSohly
 18 about this.
 19 Q And when did you -- assuming that your
 20 recollection is correct, when do you think you had
 21 that conversation or conversations with Dr. Khan?
 22 A Probably around the time of the paper or
 23 maybe, maybe at the ASP conference 2015.
 24 Q And do you remember the substance of
 25 your conversation?

1 James P. Kababick
 2 A Not offhand, no.
 3 Q If you look at Exhibit 5, can you tell
 4 me where -- well, first of all, how many centers
 5 were involved in this multi-centre study?
 6 A It indicates here that there were four
 7 laboratories participating.
 8 Q Which were? Who were they?
 9 A Based on the information up front, it
 10 would have the NCNPR University in Mississippi,
 11 Shanghai Institute Materia Medica School of
 12 Pharmacy in Shanghai, and I'm not sure which of
 13 the other ones is the participating laboratory.
 14 Q If you look at the paper, do you see any
 15 published results regarding the Shanghai
 16 Institute?
 17 A The one named in the paper here?
 18 Q Yes.
 19 A I don't see anything that says it's
 20 exclusively from their institute offhand.
 21 (Exhibit 8 was marked for
 22 identification.)
 23 BY MS. WOOLSON:
 24 Q Before we get to questions about Exhibit
 25 8, are you aware that the Shanghai Institute

1 James P. Kababick
 2 actually found DMAA in Geranium plants when
 3 participating in this multi-centre study?
 4 MR. O'NEAL: Object to the form.
 5 THE WITNESS: I don't know that
 6 they did.
 7 BY MS. WOOLSON:
 8 Q Look at Exhibit 8 for me, and let me
 9 know, first of all, if you've ever seen this
 10 before.
 11 (Witness peruses document.)
 12 THE WITNESS: Okay. I don't know
 13 that I recall this email chain, but I've read
 14 through it here.
 15 BY MS. WOOLSON:
 16 Q Okay, and you would agree with me that
 17 in this email chain -- or would you agree with me
 18 that in this email chain, the Shanghai Institute
 19 is reporting that it detected DMAA in some of its
 20 plant samples?
 21 A It would appear that somebody from the
 22 institute believes they saw DMAA in plant samples.
 23 Q Before today, were you aware of that?
 24 A I'm not sure, to tell you the truth. I
 25 may have heard something about it, but I don't

1 James P. Kababick
 2 recall offhand the specifics.
 3 Q When you say you "may have heard," it
 4 seems like you have a recollection.
 5 What is it you're recalling?
 6 A There were a lot of discussions about
 7 DMAA with various folks over the years, and I
 8 don't remember if this was part of a discussion or
 9 not, but I remember discussing mass spectrometry
 10 data and chromatography data, but I don't remember
 11 if this was the subject or not.
 12 (Exhibit 9 was marked for
 13 identification.)
 14 BY MS. WOOLSON:
 15 Q I'm going to show you what we've marked
 16 as Exhibit 9.
 17 (Witness peruses document.)
 18 THE WITNESS: Yes.
 19 BY MS. WOOLSON:
 20 Q I've shown you what's been marked as
 21 Exhibit 9.
 22 A Yes.
 23 Q Have you seen that before?
 24 A Yes.
 25 Q What is Exhibit 9?

1 James P. Kababick
 2 A It's the Fleming paper regarding DMAA
 3 analysis in Geranium plants.
 4 Q Okay. Now, do you agree that the
 5 Fleming study was a validated study?
 6 A As far as the analytical approach for
 7 the measurement, it appears to be a valid
 8 scientific paper.
 9 Q And what protocol did Fleming et al.
 10 follow?
 11 A They used an LCMS procedure.
 12 Q I'm sorry. Let me revise that.
 13 Did they follow a particular
 14 organization's method for performing the analysis?
 15 A You mean for performing the actual tests
 16 on the samples for the reported values?
 17 Q Let me rephrase the question.
 18 So with regard to reporting detection
 19 limits, accuracy, precision, linearity, things
 20 like that.
 21 A Okay. For the validation?
 22 Q Mm-hmm.
 23 A Yeah, they reference utilizing the
 24 Environmental Protection Agency's methodology for
 25 contaminant testing.

1 James P. Kababick

2 Q Have you ever followed that methodology
3 for any of the analyses that you've done in your
4 lab?

5 A No. We use other methodologies.

6 Q And how do your methodologies vary from
7 EPA's method, if at all?

8 A I would have to review the EPA methods
9 again to look at the specific aspects of how they
10 would differ.

11 Q Are you opining that use of the EPA
12 method was incorrect?

13 A No, I'm not saying that.

14 Q In your report in paragraphs 18 and 19,
15 you discuss contamination.

16 Do you see that?

17 (Witness peruses document.)

18 THE WITNESS: Yes.

19 BY MS. WOOLSON:

20 Q What facts do you have to -- strike
21 that.

22 What facts are you relying upon for your
23 opinion that the -- well, first of all, let me ask
24 it a different way.

25 Is it your -- are you opining that the

1 James P. Kababick

2 DMAA that was detected in the Fleming study is the
3 result of contamination?

4 A Yes.

5 Q And what is your factual basis for
6 saying that?

7 A The larger body of scientific evidence
8 does not report this compound in any of the
9 DMAA -- or any of the Geranium samples tested
10 overall, and in this case they were detected.
11 DMAA was detected at extremely low levels within a
12 range of what we would expect pesticide residues
13 and solvents to be detected in samples, or metal
14 contaminants, and those low levels were not
15 evaluated further and stand as outliers in the
16 larger data.

17 Subsequent to my report reviewing
18 Dr. Brown's report, she also discusses the
19 metabolic pathways and opines that it's not
20 possible for the plant to make this compound,
21 which supports my understanding of the larger data
22 showing that it's not being detected.

23 Q So beyond the fact that there are other
24 studies that did not detect DMAA in Geranium
25 plants, and that the concentrations were low, and

1 James P. Kababick

2 Dr. Brown's opinion that there is no metabolic
3 pathway or biosynthetic pathway for DMAA to exist
4 in Geranium plants, any other facts?

5 A Yes. Dr. Simone reported finding DMAA
6 in plant fertilizers, and suggested that further
7 studies be done by using the fertilizer to grow
8 Geranium plants to see what kind of uptake is
9 involved so that could be ruled out or confirmed.

10 Q Okay. Anything beyond those four
11 things?

12 A Not that I recall at this time.

13 Q Okay. Now, with regard to the metabolic
14 or biosynthetic pathways that were the subject of
15 Dr. Brown's opinion, are you an expert in
16 biosynthetic pathways in plants?

17 A No, I'm not.

18 Q And to your knowledge -- I understand
19 you're not an expert in biosynthetic pathways --
20 has the biosynthetic pathway for every single
21 plant on this planet been identified?

22 A No.

23 Q And in fact, there's a lot of
24 biosynthetic pathways for plants that haven't been
25 identified yet, correct?

1 James P. Kababick

2 MR. O'NEAL: Object to form.

3 THE WITNESS: I'm not sure.

4 BY MS. WOOLSON:

5 Q And you yourself have not spent any time
6 looking at the biosynthetic pathways for Geranium
7 plants, have you?

8 A No, I have not.

9 Q And with regard to the other studies
10 that you have cited as support for your position
11 that the DMAA in Geranium plants is a contaminant,
12 did those plant samples come from the same region
13 as those studied by Fleming et al.?

14 A I don't see where they specifically say
15 they were. There are samples included, but they
16 don't indicate the province of where they were
17 located.

18 Q And which studies have those samples --

19 A The Khan paper, the Khan/EISohly paper.

20 Q Okay. So as you sit here today, you
21 don't know whether those plants came from the same
22 region of China as those plants that Fleming
23 tested and found DMAA, correct?

24 A Yes.

25 Q Okay, and we looked at an email

1 James P. Kababick
2 regarding the multi-centre study where Shanghai
3 Institute did detect DMAA in Geranium plants,
4 correct?

5 MR. O'NEAL: Object to the form.

6 THE WITNESS: In that email, they
7 said that they thought they found DMAA.

8 BY MS. WOOLSON:

9 Q Okay, and low levels of DMAA, that was
10 your third basis.

11 Do you agree with me that plant species
12 like the Geranium plant -- strike that.

13 When you did your analysis on Geranium
14 oils, how many components did you find?

15 A I don't know the exact number.

16 Q Can you give me an estimate?

17 A Well over a hundred.

18 Q Well over a hundred, and what was
19 largest component of the oils that you found?

20 A The largest components were oxygenated
21 compounds, alcohols, esters, formaldehydes.

22 Q And roughly, percentage-wise, what
23 percentage of those did they take up of the oil?

24 A I'd have to look to see exactly, but
25 they were a major percentage.

1 James P. Kababick

2 Q 90 percent?

3 A I would say over 40, 50.

4 Q And so you have still 100 components or
5 more in the oil, at least 40 to 50 percent of
6 which are compounds other than amines, correct?

7 A I'm sorry. What was the question again?

8 Q You have over 100 components in Geranium
9 oil, correct?

10 A Yes.

11 Q And you said at least 40 to 50 percent
12 of those components are chemicals other than
13 amines, correct?

14 A Yeah, at least.

15 Q What would be the second largest
16 category of compounds in the Geranium oil?

17 A It would be other volatile oil
18 constituents, sesquiterpenoids, monoterpenes,
19 things like that.

20 Q What percentage approximately of the
21 Geranium oil would those comprise?

22 A I would have to look at that. It can
23 vary widely, depending on the distillation
24 technique and other things. The particular
25 chemotype.

1 James P. Kababick

2 Q And why would the concentration of those
3 compounds vary depending on the distillation
4 procedure?

5 A The distillation procedure, whether or
6 not it was done as a steam distillation, a hybrid
7 distillation, or with or without vacuum in the
8 altitude could all impact the rate of hydrolysis
9 and composition.

10 Q Okay. So the technique that you use can
11 affect the composition that you find?

12 A If you're talking to the way that it's
13 distilled commercially, yes. It can change the
14 ratios.

15 Q And when you're talking about
16 "chemotype," what do you mean?

17 A There are a variety of Pelargoniums that
18 are out there produced for different scents, like
19 a rose or citrus or what-have-you, and so there
20 are varieties that have been bred commercially for
21 different types of scent.

22 Q And so the composition of those
23 different varieties of Geraniums may also be
24 different?

25 A Yeah, the hybridization.

1 James P. Kababick

2 Q And do you know the chemotypes of the
3 Geraniums that were studied by ElSohly and Khan?

4 A I believe they were all just rose
5 Geranium.

6 Q That's the Pelargonium graveolens that
7 we talked about earlier?

8 A Yeah, there were some other items in
9 there, but I have to refer back to it to see.
10 They may have had a citriodora.

11 Q And what were the chemotypes of the
12 Geranium plants studied by Fleming et al.?

13 A I'd have to refer back to the paper, but
14 I believe they were the rose Geranium types.

15 Q When you say "rose Geranium types," are
16 there more than one type of rose Geranium?

17 A It's a species that covers the main
18 common essential oil producing, what we call
19 Geraniums Pelargonium. It's all the same species,
20 as far as I know.

21 Q And that's the graveolens?

22 A Yes.

23 Q Just want to make sure we're all on the
24 same page.

25 So we talked about chemotype. We talked

1 James P. Kababick
 2 about distillation.
 3 Anything else that can affect the
 4 composition?
 5 A After production and before production,
 6 how the material was handled can impact it.
 7 Q In what way?
 8 A There's a potential for oxidative
 9 degradation, decomposition that could result in
 10 polymerization or the formation of aldehydes or
 11 amines. If it's not properly stored and it's
 12 exposed to light, you can get photooxidative
 13 breakdown products.
 14 Q And would the same be true for plants
 15 versus oils?
 16 A For the storing of plants, do you mean?
 17 Q Yes, for Geranium plant.
 18 A Yes, to a degree it would be.
 19 Q Okay. So we were talking about the
 20 composition of I guess the sesquiterpenoids and
 21 monoterpenes or terpenes of the Geranium oils that
 22 you had studied. You said that the percentage of
 23 those could vary depending on these things we were
 24 just talking about, in terms of the handling and
 25 processing of the oils.

1 James P. Kababick
 2 Q But DMAA is clearly not a trace metal,
 3 is it?
 4 A No.
 5 Q And it's not a pesticide, is it?
 6 A No.
 7 Q And it's not a solvent, is it?
 8 A It can be a solvent.
 9 Q Okay. In what circumstances could it be
 10 a solvent?
 11 A I would have to look, but it could be
 12 involved in an organic synthesis.
 13 Q In what way?
 14 A It could be a -- as a freebase it's a
 15 liquid, mobile liquid, and it could be involved in
 16 the furtherance of compounds or manufacture.
 17 Q Okay. I think the fourth thing you
 18 talked about was fertilizer, correct?
 19 A What's that?
 20 Q I think the fourth factor, the fourth
 21 basis for your opinion that the DMAA that was
 22 detected by Fleming et al. was a contaminant was
 23 fertilizer, correct?
 24 A What I was saying that, that Simone
 25 discussed that there were fertilizer studies found

1 James P. Kababick
 2 Allowing for that variation, can you
 3 estimate for me the percentages of those compounds
 4 in Geranium oil?
 5 A No, I couldn't.
 6 Q Okay. What's the third largest category
 7 of components in Geranium oil?
 8 A I don't know that they would be broken
 9 down into further categories. I'd have to look.
 10 Q So there are a number of components in
 11 the Geranium oil or Geranium plant, correct?
 12 A Yes.
 13 Q And the largest percentage of those have
 14 nothing to do -- strike that.
 15 The largest percentage of those are not
 16 amines, correct?
 17 A For the oil, yes.
 18 Q Not true for the plant?
 19 A The plant, I have not seen amines
 20 indicated as a major constituent.
 21 Q Now, you said that the concentrations of
 22 DMAA that were detected were in the range of -- I
 23 think you said they were pesticides or solvents or
 24 trace metals?
 25 A Yeah, trace metals.

1 James P. Kababick
 2 DMAA in, and that it's possible that it could have
 3 come from that and should be studied further, yes.
 4 Q And what were the concentrations of the
 5 DMAA found in the fertilizer by Dr. Simone?
 6 A I'd have to refer back to the data to
 7 see the levels.
 8 Q Why don't you look in your report,
 9 because I think you have something in your report.
 10 A I believe I do.
 11 Yeah, these two reported at 8.4 and 8.1
 12 nanograms per gram.
 13 Q And how does that compare with the
 14 levels of DMAA that Dr. Simone and Dr. Fleming
 15 reported in the Geranium plants?
 16 A I'd have to look back and see what their
 17 reported levels were.
 18 Q You can look at Exhibit 5 if that helps.
 19 A They would fall above their detection
 20 limit, and according to this table, they would be
 21 below the Changzhou S11-1 and the Changzhou 1
 22 samples.
 23 Q You mean the concentrations of
 24 fertilizer?
 25 A The DMAA they reported in those two is

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2 higher than the DMAA he reported in fertilizer.

3 Q And have you done any analysis of
4 fertilizer to determine if it has DMAA in it and,
5 if so, the concentrations?

6 A No.

7 Q Are you aware of any efforts by the
8 United States government to analyze fertilizer to
9 determine if there is DMAA in it and how much the
10 concentrations would be?

11 A No.

12 Q Are you aware of any work by
13 Drs. ElSohly or Khan to analyze fertilizer to
14 determine if there is DMAA in there and how much
15 concentration there would be?

16 A No.

17 Q Are you aware of work by anybody other
18 than Dr. Simone to determine if there's DMAA in
19 fertilizer?

20 A No.

21 Q And as you sit here today, you don't
22 have any knowledge of what type of fertilizer, if
23 any, was used on the plants that Dr. Simone and
24 Dr. Fleming analyzed and detected DMAA, correct?

25 A No.

1 James P. Kababick

2 Q And as you sit here today, you don't
3 have any facts about the growing conditions of the
4 plants in which Dr. Simone and Dr. Fleming
5 detected DMAA, correct?

6 A Only that they were transferred,
7 according to the paper, from the soil to potted
8 plants and transferred to the institute.

9 Q Institute?

10 A In China where they were authenticated.

11 Q Okay, but you don't know anything about
12 the composition of the soil or the water that was
13 used or the pot that was used, anything?

14 A No.

15 Q Okay. Are you aware that Dr. Simone
16 also detected 1,3-DMAA in a Geranium plant that
17 was purchased in the United States?

18 A I don't recall that.

19 Q In paragraph 22 of your report, you say
20 that Dr. Simone did not consider his 2012 study --
21 "did not consider in his 2012 study or his current
22 declaration that the DMAA identified in the
23 limited number of Geranium samples could be a
24 contaminant."

25 Do you see that?

1 James P. Kababick

2 A And what was the question again?

3 Q Well, first I just referred you to the
4 paragraph and asked you if you saw that sentence
5 that you wrote.

6 A What was the sentence again?

7 Q That Dr. Simone "did not consider in his
8 2012 study or current declaration that the DMAA
9 identified in the limited number of Geranium
10 samples could be a contaminant."

11 Do you see that?

12 A Oh, yeah, the second half of the
13 sentence, yeah.

14 Q What's your basis for saying that he did
15 not consider whether the DMAA could be a
16 contaminant?

17 A He did not discuss the potential for it
18 being a contaminant in the paper or in his
19 declaration.

20 Q So in your mind, the fact that he didn't
21 discuss it means he didn't consider it as opposed
22 to he considered it and didn't think it was worth
23 mentioning?

24 A What I'm saying is that he didn't
25 address it in his paper or declaration.

1 James P. Kababick

2 Q You also say in your report in paragraph
3 21 the fact that there was 1,4-DMAA identified in
4 fertilizer also suggests to you a source of
5 contamination.

6 Do you see that?

7 A I'm sorry. What was the question on
8 this paragraph?

9 Q Paragraph 21. I just wanted you to
10 orient yourself, to look at that paragraph.

11 My question to you is: What were the
12 levels of 1,4-DMAA detected in the fertilizer?

13 A I would have to go back and look at the
14 data.

15 Q Do you know if they were higher or lower
16 than the concentrations found in the Geranium
17 plants?

18 A I don't recall.

19 Q If you'll now go to paragraph 23 of your
20 report, you say, "In the studies by Li and
21 Fleming, the specimens were not directly obtained
22 by the researchers. Their chain of custody is
23 dependent on third parties in China."

24 Do you see that?

25 A Yes.

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 2 Q As we discussed when we were reviewing
 3 the various studies that we marked as Exhibits 4,
 4 5, 6, 7, the vast majority of these researchers
 5 obtained their specimens from third parties,
 6 correct?
 7 A In the case of the paper by Khan and
 8 ElSohly where they obtained them at NCNPR, I don't
 9 know that the link of the relationship of those
 10 are their past experience of the samples, but
 11 there were materials obtained by third parties.
 12 MS. WOOLSON: It's 12:25. Do you
 13 want to break now?
 14 MR. O'NEAL: That's fine.
 15 (Whereupon, the lunch recess was
 16 taken.)
 17 (Exhibit 10 was marked for
 18 identification.)
 19 (Exhibit 11 was marked for
 20 identification.)
 21 BY MS. WOOLSON:
 22 Q Are you ready to resume, Mr. Kababick?
 23 A Yes.
 24 Q And you're still under oath.
 25 A Yes.

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 2 finding, so I wanted to evaluate further the
 3 validity of the paper as well as the steps that
 4 were taken throughout.
 5 Q And what did you do with that analysis
 6 of the paper?
 7 A I did, I believe, discuss that with some
 8 colleagues in email communications.
 9 Q And why did you do that?
 10 A There was a lot of interest among many
 11 stakeholders in industry about DMAA in Geranium,
 12 and we were looking at the various papers that
 13 were out and discussing what the findings are and
 14 what might be going on.
 15 Q Did you seek to have a consensus
 16 statement issued by a particular group?
 17 A Yeah, I believe I talked to -- I'm
 18 drawing a blank now. I'm sorry. Mark Blumenthal
 19 at American Botanical Council about putting out a
 20 statement regarding the findings to date, because
 21 so many stakeholders in the industry were then
 22 confused about what's going on, because there's
 23 all these papers saying it's not there and other
 24 papers saying it's present, and what's the
 25 consensus of experts that are working in the

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 2 Q I put in front of you what's been marked
 3 as Exhibit 10. Take a look at that and tell me if
 4 you've seen it before.
 5 (Witness peruses document.)
 6 THE WITNESS: Okay.
 7 BY MS. WOOLSON:
 8 Q So I'm showing you what's been marked as
 9 Exhibit 10.
 10 Have you seen that before?
 11 A Yes.
 12 Q And what is Exhibit 10?
 13 A This is the Li paper.
 14 Q And did you read the Li paper at or
 15 about the time it was published?
 16 A I believe so, yes.
 17 Q And what, if anything, did you do after
 18 you read the Li paper?
 19 A If I'm remembering correctly, I did
 20 review this paper and evaluated the data and the
 21 validation metrics.
 22 Q And for what purpose did you do that?
 23 A Well, it was reporting the detection of
 24 these compounds which was contrary to the larger
 25 body of data, and that was a very significant

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 2 industry.
 3 Q And was there a consensus statement
 4 issued?
 5 A I don't know that there actually was a
 6 consensus statement issued, but the botanical
 7 adulterants program may have put out a guidance on
 8 Geranium. I don't recall.
 9 (Exhibit 11 is handed to the
 10 witness.)
 11 (Witness peruses document.)
 12 THE WITNESS: Okay.
 13 BY MS. WOOLSON:
 14 Q Okay. Have you seen Exhibit 11 before?
 15 A Yes.
 16 Q What is Exhibit 11?
 17 A It's an email chain discussing the Li
 18 paper.
 19 Q And to whom -- well, let me strike that.
 20 Who is on this email chain?
 21 A It looks like we have Mark Roman, Mark
 22 Blumenthal, Joe Betz, John Cardellina, Ikhlas
 23 Khan, ElSohly, Anthony Armada, myself, Armstrong,
 24 Frank Jaksch and Daniel W. I'm not sure who that
 25 is.

1 James P. Kababick

2 Q I think that may be Daniel W. Armstrong.

3 A Probably.

4 Q And what is the relationship between all
5 these people on this email?

6 A All scientists that have an interest in
7 the DMAA issue.

8 Q How is it that all of you came together
9 in this email?

10 A Well, many of us have co-serve on
11 committees and panels or members of scientific
12 societies that worked on a lot of the methodology
13 in industry today and worked on a lot of the
14 educational outreach, and often communicate with
15 each other about various matters, and I believe
16 this one was related to seeking some input for the
17 American Botanical Council.

18 Q If you look down on the bottom of the
19 first page, it says, "Jim Kababick has given me
20 permission to send you his detailed comments on
21 the Li paper. He previously sent these to Ikhlas
22 Khan and to Frank Jaksch."

23 Do you see that?

24 A Yes.

25 Q What was the purpose in disseminating

1 James P. Kababick

2 your comments to this wider audience?

3 A You mean to allow Mark to distribute it
4 to the larger audience?

5 Q Yes.

6 A He wanted to get input from various
7 other people on it and to see what they thought of
8 my thoughts, so I said he could share that
9 information and get feedback on it.

10 Q And did you get responses to your email?

11 A I don't recall if I got responses to the
12 email specifically.

13 Q Okay. So let's take a look at what you
14 have to say.

15 You say you have "some serious issues
16 with the paper."

17 Do you see that?

18 A Yes.

19 Q And the first issue is that you're not
20 familiar with the journal that published the
21 article?

22 A Yes.

23 Q And why was that of concern to you?

24 A I'm pretty familiar with the major
25 journals recognized in our industry and the

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2 journals that typically carry the information
3 related to discoveries of natural products and
4 such. This journal, I had never seen any natural
5 products research published related to the work in
6 our industry before.

7 Q And so is it your position that the
8 article is somehow less worthy because it wasn't
9 published in a journal of which you are familiar?

10 A I don't know that I would say that. I
11 would say that journals accept or decline articles
12 on a number of reasons, and a journal like Journal
13 of Agricultural and Food Chemistry, which has a
14 very high impact rating, will pick the best of the
15 best science to publish, and often the submission
16 to journals who will accept the paper and publish
17 it doesn't necessarily have to do with the
18 accuracy of the data, but it has to do with the
19 overall caliber of the data among peer reviewers.

20 Q And as you sit here today, do you have
21 any information about the peer review process for
22 the journal that published the Li paper?

23 A What I understand is that you can refer
24 peer reviewers for your paper and that they
25 guarantee rapid publication upon acceptance, and

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2 following these papers, there was a large exposé
3 on pay-to-publish journals, and many, many papers
4 of credible or thought to be credible scientists
5 have been discredited, and so pay-to-publish
6 journals are under a lot of scrutiny by scientists
7 and academics right now.

8 Q As you sit here today, do you know who
9 peer-reviewed the Li article?

10 A I do not.

11 Q And as you sit here today, you say a lot
12 of the pay-to-publish journals have been
13 discredited.

14 To your knowledge, is Analytical
15 Chemistry Insights one of those?

16 A I'm not sure.

17 Q What would you need to do to be sure?

18 A I would have to check some of the
19 academic watchdog groups that monitor the journals
20 and see if anything has come up on those lists.

21 Q If that were the case, would you have
22 included that in your report?

23 A Pardon me?

24 Q If it were the case that Analytical
25 Chemistry Insights has come up on this list of

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2 questionable publications, would you have included
3 that information in your expert report?

4 A Yeah, if I had that knowledge, I would
5 have included it.

6 Q The second comment that you have about
7 the report is that you don't understand -- and I'm
8 paraphrasing -- you don't understand why the Li
9 authors made the statement that they are not aware
10 of any publication that identifies 100 percent of
11 the oil content.

12 Do you see that?

13 A Yes.

14 Q And it seems to me you agree that no one
15 has identified 100 percent of the oils content, so
16 I'm not sure I understand why this comment
17 bothered you.

18 A I would have to look at what this was
19 speaking to specifically in the paper to see what
20 this was regarding, because I don't recall
21 specifically.

22 Q Well, in the paragraph you say, "I know
23 of no credible scientist that would report the
24 values of zero percent or 100 percent in
25 analytical chemistry."

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2 Do you see that?

3 A Yes.

4 Q And why is that?

5 A Because those are hypothetical states,
6 essentially, in analytical chemistry.

7 Q And why is that?

8 A Because you can't be absolutely sure
9 that there's not at least one molecule present or
10 one molecule absent of something.

11 Q Okay. In comment number 3 you talk
12 about the chromatography column that was used, and
13 you say that you would "expect resolution issues
14 and possibly other chromatography problems from an
15 overload."

16 Do you see that?

17 A Yes.

18 Q Did you make any attempt to replicate
19 the conditions in the Li study to see if there
20 were chromatography problems or resolution issues?

21 A No, I did not.

22 Q In paragraph 4 you say you would have
23 expected some "decomposition and formation of
24 aroma chemical compounds that are amine-like in
25 nature after a long travel from China."

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2 Do you see that?

3 A Yes.

4 Q Why were you asking if it was unusual?

5 A Where I say "do you see this as
6 unusual"?

7 Q Yes.

8 A Having worked with lots of fresh
9 material shipped from other countries, it is very
10 hard to get fresh material into the US without
11 delays such that usually, when it comes in, it is
12 compromised. Even an extra day delay can cause
13 issues unless it's shipped on dry ice or kept cold
14 another way.

15 Q Okay, and the decomposition that you're
16 referring to, is that a natural process or
17 phenomenon?

18 A It can be.

19 Q Okay. In the fifth paragraph you say
20 that the standard for DMAA was purchased from
21 Sigma.

22 Do you see that?

23 A Yes.

24 Q Isn't that where Drs. Khan and ElSohly
25 purchased their sample -- their standards as well?

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2 A Yes. I don't know if it's the same
3 catalog number, though. I have to go back and
4 check.

5 Q Okay. In paragraph number 6 you say, "I
6 find the chromatographic separation, even for a
7 fused core column, to be remarkable, considering I
8 can't fully baseline resolve these diastereomers
9 on a GC column with full baseline resolution
10 (unless derivatized)."

11 As of the date that you had sent this
12 email, which looks like August 9, 2012, when was
13 the last time that you had attempted to resolve
14 the DMAA diastereomers?

15 A Resolved on a GC column?

16 Q Yes.

17 A I don't recall.

18 Q Have you, in fact, tried to resolve the
19 DMAA diastereomers on a GC column?

20 A Yes, I did work on that, and I got the
21 diastereomers almost baseline resolved.

22 Q What were you using as the source of the
23 DMAA when you were doing this work?

24 A I had isolated some from trade material,
25 commercial DMAA being proffered to industry that I

<p style="text-align: right;">Page 110</p> <p>1 James P. Kababick 2 obtained, and also standard from ChromaDex, and I 3 also obtained the CPR standard from Sigma, the 4 uncertified one. 5 Q And were you doing this work for a 6 client? 7 A Actually, it was for a method 8 development for client services, yes. 9 Q When you say it was "method development 10 for client services," do you mean it was work that 11 you were doing to develop a method for a specific 12 client? 13 A No. It was for developing methodologies 14 to offer to clients. 15 Q And has Flora offered -- strike that. 16 Have you developed such a method and now offer it 17 to clients? 18 A We currently offer the analysis of 19 compounds or mixtures to detect the presence of 20 DMAA. We're not right now quantifying DMAA. 21 Q Is there a reason why you're not 22 quantifying DMAA? 23 A There's not enough demand right now for 24 that. 25 Q So you haven't developed a method to do</p>	<p style="text-align: right;">Page 111</p> <p>1 James P. Kababick 2 that? 3 A No. I have a method developed to do 4 that. 5 Q You just don't offer it commercially? 6 A Right. 7 Q Okay, and when I asked you about 8 resolving the diastereomers on a GC column -- 9 well, I asked you about resolving the 10 diastereomers on a column, and you said GC. 11 Have you done other work with regard to 12 the DMAA diastereomers in attempting to resolve 13 them? 14 A Yes. I've run it on liquid 15 chromatography, too. 16 Q And was the source of the material the 17 same, trade material? 18 A Yes, the three materials that I 19 mentioned. 20 Q In paragraph 9 you talk about "the 21 addition of .1 percent formic acid." 22 Do you see that? 23 A Yes. 24 Q Did you do any work to determine if 25 there was any shift in the retention times caused</p>
<p style="text-align: right;">Page 112</p> <p>1 James P. Kababick 2 by the acid? 3 A No, I did not. 4 Q In paragraph 11 you talk about working 5 in the "pesticide residue chemistry area." 6 What work have you done in pesticide 7 residues? 8 A We developed special methods for the 9 analysis of trace residues in ginseng and 10 botanicals, and I have collaborated, through the 11 AOAC, on methodology with the Food and Drug 12 Administration's -- what's the acronym? Not CDER. 13 CFSAN, Center for Food Safety and Applied 14 Nutrition with Dr. John Wong and Alex Krynitsky. 15 Q In the same paragraph you go on to say, 16 "They may be the luckiest chemists ever. The data 17 is extremely tight, and this data is not 18 consistent with the work by Horwitz, which shows 19 that accuracy and precision are empirical function 20 of the level of analyte in the matrix." 21 What did you mean? 22 A Dr. Horwitz was a statistician and 23 editor for the official methods of AOAC 24 International. He was awarded the Priestley medal 25 for his work in developing what's called the</p>	<p style="text-align: right;">Page 113</p> <p>1 James P. Kababick 2 HorRat equation. He had hypothesized that as 3 technology advanced, that he would see precision 4 and accuracy improve over time. So if we looked 5 at older methods to measure something and newer 6 methods, the newer methods would have tighter 7 precision and accuracy. 8 What he found out was that never 9 changed. Precision and accuracy were always a 10 function of the analyte concentration and matrix, 11 and so much so that he developed a formula that 12 will give you the approximate window for 13 performance. 14 In this case, these precision and 15 accuracy data points are extremely tight compared 16 to what one would expect for the working 17 concentrations being measured, and so it is 18 unusual, because, according to 130, 140 years of 19 research data, statistical studies, you shouldn't 20 be able to get that. 21 Q Have you seen other studies where the 22 values are better than what would be predicted by 23 Horwitz and his equation? 24 A I have. Some of those, I should say, 25 were fabricated.</p>

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2 Q And how do you know they were
3 fabricated?

4 A Further work and investigation yielded
5 that information.

6 Q Okay, and as you sit here today, do you
7 have any facts to suggest that the Li results were
8 fabricated?

9 A I do not.

10 Q Okay. I just want to go back to the
11 question I was asking you about quantification of
12 DMAA. You said that that is not a service that
13 you offer for clients.

14 Have you, in fact, attempted to quantify
15 any DMAA in any substance?

16 A We did do some of that work in the past,
17 but it rapidly dropped off with the, you know,
18 removal of DMAA from products. We didn't pursue
19 it.

20 Q Do you agree with me that it is possible
21 for racemic mixtures to be created naturally?

22 A Some.

23 Q Now, at the end of your analysis -- it's
24 on the page marked ElSohly 2630.

25 A Yes.

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2 Q You say, "Considering that one of the
3 authors declares in the paper that he provided
4 expert witness services for the company funding
5 the study, I feel it is even more critical to
6 emphasize why they are the only group that was
7 able to obtain samples of oils and botanical
8 materials that had DMAA when all other researchers
9 were unable to do so."

10 Do you see that?

11 A Yes.

12 Q And in your mind, what relevance is it
13 that one of the authors provided expert services
14 to a company funding the study?

15 A Your question was why -- I'm sorry.

16 Q Of what significance is it to you that
17 one of the authors of the study was providing
18 expert witnesses for the company who funded the
19 study?

20 A Well, there is a claim by USPlabs, if
21 I'm correct, that Geranium is a natural source of
22 the compound. The only scientist who really come
23 out and show that in the plant were Li at this
24 point, and he also was helping them as an expert
25 witness in that aspect. And therefore, the fact

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2 that his data goes against the larger body of
3 scientific evidence, and he's working with a group
4 arguing this naturalness, that I think it's really
5 important to establish, you know, exactly why he
6 feels nobody else could see that material and
7 what's going on there.

8 Q Okay. This is Exhibit 4, the ElSohly
9 2012 study.

10 A Yes.

11 Q Is that study funded by the FDA and the
12 NIH?

13 A It says it was supported by the U.S.
14 Anti-Doping Agency.

15 Q Okay, and who are the co-authors on the
16 paper with Drs. Khan and ElSohly?

17 A There's Waseem Gul, Kareem ElSohly,
18 Timothy Murphy. I'm going to maybe have trouble
19 with this name. Aroona Weerasooriya. Then Amar
20 Chittiboyina, Bharathi Avula, Ikhlas Khan, Amy
21 Eichner and Larry Bowers.

22 Q Who is Amy Eichner?

23 A Amy Eichner is a scientist at USADA.

24 Q And who is Larry Bowers?

25 A I believe he is also a scientist at

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2 USADA.

3 Q And to your knowledge, has Dr. ElSohly
4 acted as an expert witness for USADA?

5 A I'm not sure.

6 Q To your knowledge, has Dr. Khan acted as
7 an expert witness for the United States
8 government?

9 A I believe he has, yes. He did an expert
10 report for this case.

11 Q If you'd turn now back to Exhibit 11 and
12 specifically to page ElSohly 2633, there's an
13 email that starts on the bottom of that page, and
14 it carries over to 2634.

15 A I'm sorry. Which page?

16 Q 2633.

17 A Oh, the one for Mark Blumenthal?

18 Q Yes.

19 You see where it says "Jim K. has
20 suggested a possible consensus statement on this
21 matter, possibly coming from ABC"?

22 A Yes.

23 Q And that was the consensus statement we
24 talked about earlier this afternoon?

25 A Yeah, the one about the various papers

<p style="text-align: right;">Page 118</p> <p>1 James P. Kababick 2 and the synthesis of all the data, yes. 3 Q And you see right above that email, 4 Joseph Betz says that he "doesn't think a 5 consensus statement would be useful just yet"? 6 A Yes. 7 Q Did you have any conversations with him 8 about why he didn't think that would be useful? 9 A I don't recall any. 10 Q Okay. Let's go back to your report, 11 Exhibit 1. In paragraph 19, you're discussing the 12 possibility of foreign DNA in plant samples. 13 Do you see that? 14 A Yes. 15 Q And you cite to a paper by Newmaster, 16 Ragupathy and Hanner, right? 17 A Yes. 18 (Exhibit 12 was marked for 19 identification.) 20 BY MS. WOOLSON: 21 Q So this is Exhibit 12. Take a look at 22 that and let me know when you're ready to proceed. 23 (Witness peruses document.) 24 THE WITNESS: Okay. 25</p>	<p style="text-align: right;">Page 119</p> <p>1 James P. Kababick 2 BY MS. WOOLSON: 3 Q So this paper discusses next-generation 4 sequencing, correct? 5 A Yes, of botanicals. 6 Q And it discusses the problem of 7 incidental DNA in next-generation sequencing, 8 correct? 9 A Yeah, the problem with incidental DNA, 10 meaning DNA that shows up, or fragment DNA that 11 shows up that is linked to a certain botanical 12 species. 13 Q And the studies that were run by 14 Dr. Fleming and Dr. Li had nothing to do with 15 next-generation sequencing, did they? 16 A No. 17 Q And they weren't detecting DNA, were 18 they? 19 A Not in those studies, no. 20 (Whereupon, a short recess was 21 taken.) 22 BY MS. WOOLSON: 23 Q Back to your report. 24 A Yes. 25 Q In paragraph 25 you say -- well, are you</p>
<p style="text-align: right;">Page 120</p> <p>1 James P. Kababick 2 there? You say, "Dr. Simone also failed to 3 utilize other available analytical techniques to 4 gain additional evidence about the naturalness of 5 DMAA in the Geranium samples studied, such as 6 isotope ratio mass spectrometry." 7 Do you see that? 8 A Yes. 9 Q First of all, what information would you 10 expect to get from running isotope ratio mass 11 spectrometry? 12 A Isotope ratio mass spectrometry would 13 give you the ratios of different carbons, carbon 14 12 and 13, 14. It could also give you isotope 15 data on other elements such as hydrogen and 16 oxygen. The goal is to determine if a compound 17 has an isotope ratio consistent with a plant 18 source or a Petra chemical source. It's used 19 extensively in authenticating natural products 20 that are also available synthetically. 21 Q What is the difference in the ratios 22 between plant and synthetic? 23 A I'd have to look it up. It's calculated 24 against Pee Dee Belemnite and expressed in a 25 percent-percent basis, so the data is compared to</p>	<p style="text-align: right;">Page 121</p> <p>1 James P. Kababick 2 these, and then you run a formula to compare 3 those. 4 Q And I take it, as you sit here today, 5 you did not run isotope ratio mass spectrometry on 6 any Geranium plant samples, did you? 7 A No. 8 Q And would you run the isotope ratio mass 9 spectrometry on the sample itself or like on a, 10 just a ground-up sample of Geranium plant, or 11 would you process the sample somehow? 12 A You would prepare the sample, and 13 depending on what analysis you were going to do by 14 isotope ratio, I would either prepare it by 15 isolating and purifying the compound or setting it 16 up in a volatile state where it could be separated 17 by gas chromatography. 18 Q When you say "isolating the compound," 19 what compound are you talking about? DMAA? 20 A Yeah, whatever compound I would want to 21 study. The most recent one I did was on caffeine. 22 Q To your knowledge, has anyone run 23 isotope ratio mass spectrometry on Geranium 24 plants? 25 A Yes. I believe that there have been</p>

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 2 analyses conducted on constituents of the oil.
 3 Q And by whom?
 4 A I'd have to review the literature again.
 5 Q And were any of those constituents DMAA?
 6 A Not to my knowledge.
 7 Q In the next paragraph you say, "They
 8 failed to conduct the necessary additional studies
 9 needed to show that the compound is plant-derived
 10 and to rule out likely contamination sources."
 11 Do you see that?
 12 A Yes.
 13 Q Leaving aside the isotope ratio mass
 14 spectrometry that we just discussed, what
 15 necessary additional studies are you referring to?
 16 A What I would do in this case, in
 17 addition to IRMS on the compound, is to get a
 18 larger population of samples to see what
 19 percentage in a larger population the material
 20 appears, and multiple replicates of samples, so
 21 from each region, additional samples. And if the
 22 material seemed to be only in certain samples, I
 23 would further evaluate what might be the source of
 24 the contamination.
 25 Q Okay, and is there a particular

1 James P. Kababick
 2 guideline or methodology that prescribes these
 3 additional studies, or is that simply your opinion
 4 of what should be done?
 5 A It's considered basic good scientific
 6 practice, if you're identifying a compound that is
 7 generally considered not to be occurring naturally
 8 in a product, to explore that further and make
 9 sure that that compound actually is coming from
 10 the plant and not a byproduct of degradation,
 11 contamination or anything like that.
 12 Q My question was: Is it set forth in a
 13 particular methodology or procedure or guideline
 14 that those are the steps that need to be taken?
 15 A Not that I can recall offhand.
 16 Q And those steps that you've just
 17 identified for us, you didn't do any of those
 18 steps, did you?
 19 A No.
 20 Q And Dr. Brown didn't do any of those
 21 steps, did she?
 22 A I'm not sure if she did.
 23 Q You read her expert report?
 24 A I did.
 25 Q Did you see anything like that in her

1 James P. Kababick
 2 expert report?
 3 A I don't recall that I did.
 4 Q Did Dr. Khan do any of those studies?
 5 A I'm not sure that he did.
 6 Q Now, you talked about replicates. How
 7 many replicates did Drs. Fleming and Simone do?
 8 A I'd have to refer back to the paper.
 9 Q Okay. You can. It's Exhibit 9.
 10 A It looks like in some cases from a given
 11 region, they collected or tested two samples. In
 12 other cases, one. The samples were made up by
 13 mixing a variety of plants together, which they
 14 say is two to ten mixed up together. They weren't
 15 individual plant specimens.
 16 Q Okay. As part of your -- as part of the
 17 preparation of your expert report, did you review
 18 Dr. Simone's studies on the derivatization of
 19 1,3-DMAA and 1,4-DMAA?
 20 A You mean the GC or LC derivatization for
 21 analysis?
 22 Q Yes, using I think it's called FLEC.
 23 A Yes, I believe so.
 24 Q What factors can affect the
 25 concentrations of analytes in plants?

1 James P. Kababick
 2 A Is there a specific analyte class that
 3 you're looking at, or levels?
 4 Q Just generally.
 5 A Generally, broadly speaking, this would,
 6 of course, vary tremendously with what the
 7 analytes are, their concentrations and other
 8 variables, but how they are collected, how they
 9 are grown and collected, how they're stored, how
 10 they're processed, those would all be factors.
 11 Q What about the environment in which
 12 they're grown?
 13 A Yes.
 14 Q What about the season in which they're
 15 harvested?
 16 A That could.
 17 Q What about the soil in which they grow?
 18 A Yes.
 19 Q What about the weather? I guess that
 20 would be environment, so --
 21 A Right.
 22 Q Okay, and as you sit here today, do you
 23 have knowledge about any of those factors for any
 24 of the Geranium plants that have been studied,
 25 whether by Dr. ElSohly, Dr. Khan, Dr. Lisi,

1 James P. Kababick
 2 Dr. Fleming, Dr. Li?
 3 A Only the mention that there were summer
 4 and winter harvests in the one paper.
 5 Q Beyond that, nothing?
 6 A Not that I recall.
 7 MR. O'NEAL: Which paper?
 8 THE WITNESS: The Li and Fleming
 9 paper.
 10 BY MS. WOOLSON:
 11 Q We've talked a lot about --
 12 A Yeah, the -- am I getting my papers
 13 mixed up? The Fleming and Simone paper. Let me
 14 see if I got my wires crossed here.
 15 I believe one of the papers refers to
 16 seasonal harvest, but I need to check that, see
 17 which one it was here.
 18 Yeah, "during three harvest seasons,"
 19 yeah, so it's the Fleming/Simone paper here.
 20 Q Okay. We've talked at various points
 21 today about something called the AOAC.
 22 What is that?
 23 A The AOAC is a professional scientific
 24 society that is a group of scientists and
 25 interested parties that collaborate, cooperate to

1 James P. Kababick
 2 develop analytical methods and put those methods
 3 or promulgate those methods out to industry.
 4 Originally, a long time ago, AOAC was
 5 part of the FDA. It was a society within the FDA
 6 many years ago. It was privatized and is now an
 7 independent entity, and it includes scientists
 8 from all over the world.
 9 The organization manages the official
 10 methods of analysis which are recognized under the
 11 C.F.R. as official test methods and are used all
 12 over the world, and when methods are needed and
 13 there's a call for methods, the call goes out,
 14 experts are assembled, and methods are evaluated
 15 and taken to different action statuses.
 16 The process has changed over time
 17 because of the rapid response needed to changing
 18 global conditions, but they have what are called
 19 "official methods, first action methods," and then
 20 there are methods that meet what they call
 21 "standard performance requirements" or "SPM
 22 methods," and these cover all kinds of things from
 23 fertilizers to infant formula, vitamins, to, you
 24 know, water testing and food and supplements and
 25 pharma. That's pretty extensive.

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 2 Q And when you say "when a call goes out
 3 for a method," who is making -- who is sending out
 4 the call?
 5 A The call could be stakeholders. For
 6 instance, recently, Mead Johnson, makers of infant
 7 formula, they wanted to get a unified method for
 8 analyzing the level of nutrient vitamins in infant
 9 formula, and that was using a more modern
 10 technique, and they sponsored the development of a
 11 method along with some other infant formula
 12 companies.
 13 Q So stakeholders who have an interest in
 14 developing the method can send out the call and
 15 then sponsor the work?
 16 A Yes, or sometimes it will come from
 17 regulatory, there's a need, or maybe part of a
 18 clinical research project, there might be a need
 19 to develop a method.
 20 Q Okay. So, for example, FDA could send
 21 out a call saying we need to develop a method to
 22 do X, or NIH could send out a request and say we
 23 need a method for Y?
 24 A Yeah, and then normally these are based
 25 on the input of what's called the IRS, the

1 James P. Kababick
 2 Ingredient Ranking Subcommittee. So for the
 3 dietary supplements, this committee has been
 4 charged with determining what the priority order
 5 is for methods that might need to be developed,
 6 and that can be rearranged over time. That
 7 depends on what's going on in the market and
 8 things like that.
 9 Q Okay. I just wanted to clarify
 10 something. You said "IRS." You didn't mean the
 11 Internal Revenue Service?
 12 A No, no.
 13 Q Because it didn't make any sense.
 14 MR. O'NEAL: He said what the
 15 letters were.
 16 THE WITNESS: Ingredient Ranking
 17 Subcommittee.
 18 MS. WOOLSON: I heard "IRS," and I
 19 was like, what?
 20 MR. O'NEAL: We'll stipulate that
 21 the Internal Revenue Service should not be
 22 involved.
 23 THE WITNESS: Yes. I think that
 24 was not the best choice for an acronym.
 25

<p style="text-align: right;">Page 130</p> <p>1 James P. Kababick 2 (Exhibit 13 was marked for 3 identification.) 4 BY MS. WOOLSON: 5 Q You don't have to read the whole thing. 6 You can, but you don't have to. The questions 7 will be targeted. 8 MR. O'NEAL: We'll be adjusting our 9 travel schedule. 10 THE WITNESS: Yes. 11 BY MS. WOOLSON: 12 Q Have you seen Exhibit 13 before? 13 A Yes. 14 Q And what is it? 15 A This is Appendix K, which are guidelines 16 for dietary supplement and botanical methods. 17 Q And these are guidelines issued by whom? 18 A They are issued by the AOAC. 19 Q Okay, and if you could turn for me to 20 page GOV-031203. 21 A Yes. 22 Q At the bottom of that page, there's a 23 paragraph right above the table that says "Data 24 Acquisition." 25 Do you see that?</p>	<p style="text-align: right;">Page 131</p> <p>1 James P. Kababick 2 A Oh, on the right side. 3 Q "Data acquisition follows the sample 4 preparation step and requires advanced analytical 5 techniques, as the ultra-complexity of samples for 6 metabolomic analysis makes it impossible to 7 technologically separate, quantify and identify 8 every metabolite within a biological sample." 9 Do you see that? 10 A Yes. 11 Q Do you agree with that statement? 12 A I would say in the context of top-down 13 metabolomic pathway studies, yes, as this is 14 talking. 15 Q When you say "top-down metabolomic 16 studies," what do you mean? 17 A That's the studying of metabolic plant 18 pathways by looking at a variety of compounds and 19 data-mining those compounds using chemometric 20 modeling. 21 Q And to what end I guess is the question. 22 A Tracing the pathways by which 23 metabolites are produced in the plant. 24 Q And if you turn to the next page, 25 there's Table 2, and it's got listed some standard</p>
<p style="text-align: right;">Page 132</p> <p>1 James P. Kababick 2 techniques that are used in metabolomic analysis. 3 It's Table 2, not Figure 2. 4 A Oh, sorry. You have a question 5 regarding the -- 6 Q I do. 7 So on Table 2 there are various 8 techniques that are listed for analyzing 9 compounds, and this morning I was trying to ask 10 you, in a very inarticulate fashion, questions 11 about NMR versus mass spec, so hopefully this 12 table will help me ask a more articulate question 13 of you. 14 So looking at the table, it says for the 15 technique of NMR, nuclear magnetic resonance, it's 16 "low sensitivity." 17 Do you see that? 18 A Yes. 19 Q And then for gas chromatography mass 20 spec, it says "high sensitivity." 21 A Yes. 22 Q And for LC mass spec, it says "medium 23 sensitivity." 24 A Yes. 25 Q What is your understanding of what this</p>	<p style="text-align: right;">Page 133</p> <p>1 James P. Kababick 2 table means regarding sensitivity and why NMR is 3 low sensitivity versus mass spec methods? 4 A In this, related to metabolomic 5 analysis, the NMR, the way it's being referenced 6 here, to my understanding, is looking at an 7 extracted sample. You have in that sample 8 multiple components as a -- we call Gestalt. 9 They're all together at once. You're getting all 10 the signal from everything that responds to NMR, 11 where GC/MS and LC/MS involve some degree of 12 chromatographic separation of the compound, so 13 you're now getting compounds separated from other 14 compounds. 15 Q And when you're talking about separation 16 of compounds, does that mean that you are somehow 17 performing an action on the initial product or 18 substrate in order to effect that separation? 19 A I'm not sure I understand. 20 Q Sure. 21 You're talking about separating 22 compounds in LC and mass spec. 23 A Yes. 24 Q And so my question was: Does that mean 25 that you're operating in some way upon the</p>

1 James P. Kababick
 2 original substrate in order to effect that
 3 separation?
 4 A You're operating on whatever you
 5 prepared for analysis, which could be a simple
 6 extraction from something like into a solvent, but
 7 even then, one must keep in mind that that's
 8 somewhat selective. You don't put -- if you're
 9 working directly with plant material, not
 10 everything is going to go into solution, so you're
 11 always getting some kind of bias in what you're
 12 seeing, but once you get onto the instrument,
 13 whatever you have put on the instrument, the goal
 14 there is to get separation.
 15 You don't always get separation of
 16 everything. It depends on what the detector can
 17 detect, what separates on the column and their
 18 concentrations.
 19 Q So it depends on the conditions that
 20 you're employing?
 21 A Right, partly, yes.
 22 Q Okay. Do you agree that the guidance
 23 that the AOAC and similar organizations publish
 24 are simply that, they're guidance?
 25 A In general, they're guidelines, yes.

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 2 several parts of the country, but yet it is also
 3 something that is a natural product; is that --
 4 A Yohimbine hydrochloride is a monograph
 5 drug in the United States Pharmacopeia, and it is
 6 recognized as a drug by FDA, as far as I know.
 7 The yohimbine in yohimbine bark is in the freebase
 8 form. It's a freebase form, the difference being
 9 the salt moiety and the source of the material.
 10 Q And can you take the freebase yohimbine
 11 in the bark and then make it rather easily into
 12 the prescription drug that we're talking about?
 13 A You could turn it into a hydrochloride
 14 salt, which would have the same structure as the
 15 pharmaceutical form.
 16 Q Okay. So when I asked the question
 17 earlier about can something that is a prescription
 18 drug also be naturally occurring, it was in the
 19 context of this article that I was asking that
 20 question.
 21 So with that in mind, what is your
 22 answer?
 23 A It could be the same molecular compound
 24 as far as structure goes, yes.
 25 Q Let's go back to Exhibit 2 for a minute.

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 2 Q So that other approaches may be used if
 3 they're deemed to be appropriate?
 4 A Yes, that is the case.
 5 Q Do you agree that some compounds that
 6 are characterized as drugs can still be naturally
 7 occurring compounds?
 8 A When you say "categorized as drugs," do
 9 you mean that they are compounds that are
 10 recognized as pharmaceutical drugs by FDA?
 11 Q I don't know.
 12 (Exhibit 14 was marked for
 13 identification.)
 14 BY MS. WOOLSON:
 15 Q I'm showing you Exhibit 14, which I
 16 think you will recognize is an article that you
 17 authored.
 18 A Yes.
 19 Q Okay. So this was an article that you
 20 wrote about yohimbine?
 21 A Yes.
 22 Q I think I said that right.
 23 A You did.
 24 Q And my understanding is that it has been
 25 categorized as a scheduled prescription drug in

1 James P. Kababick
 2 It's the email that we talked about this morning.
 3 A Yes.
 4 Q In your email that is Exhibit 2, you
 5 start the email by saying, "Dear colleagues and
 6 remaining friends who don't yet hate me for
 7 pointing out dangerous supplement issues."
 8 Do you see that?
 9 A Yes.
 10 Q What dangerous supplement issue were you
 11 trying to point out in this email?
 12 MR. O'NEAL: Object to the form.
 13 THE WITNESS: I think in this
 14 particular thing what I was speaking to is in
 15 general, when I brought up concerns about
 16 supplement issues, which most of them have
 17 been related to phosphodiesterase 5
 18 inhibitors, Sibutramine and analogues of
 19 Sibutramine and contaminants such as getting
 20 the wrong species mixed up, it's toxic, that
 21 kind of thing.
 22 And then in this case we were
 23 looking into the reports on the Forthane DMAA
 24 safety issues, and so I was pointing that out
 25 in the larger general sense.

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2 BY MS. WOOLSON:

3 Q Okay. In the next paragraph you say,
4 "In my continuing argument that DMAA (a/k/a
5 Geranium, a/k/a methylhexaneamine) is a drug with
6 dangers," and then you continue on.

7 How long have you been making that
8 argument?

9 A As far as that there could be potential
10 dangers with methylhexaneamine?

11 Q Yes.

12 A I don't know the specific amount of
13 time. When the issue started coming up, I started
14 looking into it, but I don't have a time window,
15 to tell you the truth.

16 Q Can you estimate? Was it five years,
17 ten years?

18 A Oh, no, I don't think anything like
19 that.

20 Q Okay, and what --

21 A This was all rapidly happening at the
22 time.

23 Q Okay. So the use of the term "continued
24 argument" suggests that there had been preceding
25 argument.

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2 Do you recall what, if any, steps you
3 had taken before this email?

4 A I don't actually recall specifically
5 what I did. I don't have a good recollection of
6 all the timing of how this played out, because it
7 was so long ago.

8 Q Okay. You're not a physician, correct?

9 A No, I'm not a physician.

10 Q And as you sit here today, are you
11 opining about the safety of DMAA?

12 A No, I'm not opining on the safety.

13 Q Now, at the end of your email you say,
14 "Finally, if I turn out to be wrong about this,
15 and methylhexaneamine is actually found in
16 Geranium oil as per the Ping paper and confirmed
17 using mass spec and IRMS to be natural and
18 authentic, I will be happy to be the first person
19 to publish a correction to my position."

20 Do you see that?

21 A Yes.

22 Q Did you publish anything to change your
23 position after the Li and Fleming papers were
24 issued?

25 A No, I did not. They did not meet the

1 James P. Kababick

2 requirement here.

3 Q And in what way did they fail to meet
4 the requirement?

5 A They didn't use isotope ratio mass spec,
6 and the papers, while they identify the presence
7 of DMAA, they don't confirm that it's a naturally
8 occurring material.

9 Q And again as you sit here today, you
10 don't have any information about the conditions of
11 the plant, the treatment of the plant, the
12 handling of the plant samples, nothing, correct,
13 beyond what's in the papers?

14 A Beyond what's in the papers, no.

15 Q And as you sit here today, you don't
16 have any facts to demonstrate that the plants were
17 contaminated with DMAA beyond the fact that there
18 are studies that don't find DMAA, and there are
19 studies that do find DMAA?

20 A Well, actually, no. After reading
21 Dr. Brown's report that states -- her expert
22 report that DMAA can't be made by the metabolic
23 pathways in Geranium, it supports my position that
24 it must be a contaminant, because there's no other
25 explanation.

1 James P. Kababick

2 Q Again, you're not an expert in
3 biosynthetic pathways, correct?

4 A No. I'm relying on her expertise, which
5 I have no reason to question.

6 Q And you've already testified that there
7 are many biosynthetic pathways for plants that
8 have not yet been identified, correct?

9 A I would imagine there are.

10 Q And do you know what steps, if any,
11 Dr. Brown took to identify potential biosynthetic
12 pathways?

13 A I'm not familiar with that. I'm solely
14 relying on her expertise in the field.

15 Q And when you had issued this report that
16 you've been looking at as Exhibit 1, had you read
17 Dr. Brown's report by that time?

18 A No, I didn't read her report until after
19 I did my report.

20 Q What, if any, reports had you read when
21 you drafted your report, other than Dr. Simone's?

22 A Dr. Simone's and Dr. Heuer's, I believe.
23 Yeah, Heuer. I read these two reports, and I
24 think I may have read something from Dr. ElSohly,
25 too. I'm not sure, or am I thinking of the paper?

1 James P. Kababick
 2 I'm not sure.
 3 MR. O'NEAL: Are you talking about
 4 expert reports?
 5 THE WITNESS: There was -- I think
 6 I may be thinking about his paper. There
 7 were these two expert reports I read, and
 8 then after I did my report, I was provided
 9 with Dr. Brown's and Ikhlas Khan's report and
 10 read those following it, but I read
 11 Dr. Simone's and Dr. Heuer's, and I reviewed
 12 the other documents related to the case, the
 13 papers and articles and things.
 14 (Exhibit 15 was marked for
 15 identification.)
 16 (Witness peruses document.)
 17 THE WITNESS: Yes.
 18 BY MS. WOOLSON:
 19 Q You've seen Exhibit 15 before?
 20 A Yeah, it looks like an email
 21 communication that I sent, and this article is --
 22 looks like it's from Wall Street Journal,
 23 possibly.
 24 Q Okay. This email that you sent, you
 25 sent to William Martin at FDA. It looks like a

1 James P. Kababick
 2 asked to peer-review additionally a paper because
 3 of my familiarity with DMAA, but I don't know if
 4 this was Armstrong's paper or the joint
 5 collaborative one with ElSohly and Khan.
 6 Q Did you peer-review either one of those
 7 papers?
 8 A I reviewed them at the request of the
 9 authors prior to their release, but not actually
 10 through the journal process as a primary reviewer,
 11 as a final reviewer.
 12 Q And the ElSohly study that you reviewed;
 13 was that the multi-centre study?
 14 A Yes.
 15 Q And when you reviewed the multi-centre
 16 study, did you have benefit of the information
 17 that we discussed today about the Shanghai
 18 Institute and its detection of DMAA?
 19 MR. O'NEAL: Object to the form.
 20 THE WITNESS: I'm not sure exactly
 21 what data was provided, but I remember there
 22 being some raw data to look at and evaluate.
 23 BY MS. WOOLSON:
 24 Q Okay, and as you sit here today, you
 25 don't know what embargoed paper this email is

1 James P. Kababick
 2 group called "ORAHQ, ORS Management at FDA."
 3 What group is that?
 4 A That would be the Office of Regulatory
 5 Affairs Headquarters Management.
 6 Q And why were you communicating with
 7 them?
 8 A I don't recall why we were communicating
 9 regarding this.
 10 Q Okay, and you also sent it to the ORA
 11 lab directors?
 12 A Yes.
 13 Q And you CC'd Daniel Fabricant, correct?
 14 A Yes, it appears so here.
 15 Q When you look at the email, it says,
 16 "I've had a chance to review the embargoed paper
 17 and saw those two erroneous hits, and the MS data
 18 did not support it, in my opinion."
 19 What embargoed paper are you talking
 20 about?
 21 A That I'm not sure. I remember looking
 22 at embargoed paper, but I do not recall whose
 23 paper it was. I've looked at some articles that
 24 were embargoed, given an opportunity to review and
 25 comment before it went to press, and also was

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 2 discussing, correct?
 3 A Not exactly, but I think it would be one
 4 of those -- let me see here. I'm not sure if this
 5 article is linked to this communication or not.
 6 Q You see further down in the email it
 7 says, "Regardless, I was very pleased the final
 8 paper did not have that data."
 9 Do you see that?
 10 A Yes.
 11 Q Why were you pleased that the final
 12 paper did not have data in it?
 13 A In particular, I believe this is
 14 addressing some data that suggested DMAA was
 15 present, but in looking at the spectral data, the
 16 mass spec data was not matching, and in one case
 17 the data that I looked at, the signals were below
 18 detection limits of the method, so in those cases
 19 you can't make a scientifically valid call that
 20 that's DMAA.
 21 Q And so you think that omitting the data
 22 altogether from the paper is appropriate?
 23 A I think that not saying that it's a
 24 compound when you're below the level at which you
 25 say you can detect the compound is appropriate.

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2 Q Well, that's not what my question was.
3 My question was: Do you think omitting the data
4 from the paper is appropriate?

5 A It depends on how it would be presented.
6 The way it was, yes, because it was making an
7 inaccurate, unscientifically supported claim.

8 Q How is presenting data making an
9 inaccurate and unscientifically supported claim?
10 The data is the data, is it not?

11 A Well, when you present it saying that it
12 identifies a compound that you're unable to
13 actually empirically confirm that, then that's
14 misrepresenting the data.

15 Q But I think you're taking my question
16 further than my question went.

17 My question was simply: Do you think
18 omitting the data, not making any conclusion, but
19 omitting the data entirely from a paper just
20 because it doesn't fit, is inappropriate?

21 A I'm not sure if you're speaking
22 specifically to this mass spec data or in general
23 as a practice.

24 Q Well, let's say in general as a
25 practice.

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2 A And when you say the data "doesn't fit,"
3 is that that you determine it's not valid data?

4 Q No, that it doesn't fit your conclusion.

5 A Well, how would it not fit the
6 conclusion?

7 Q Well, if you're concluding that there's
8 no DMAA in a plant, for example, and you find data
9 that suggests there is DMAA in a plant, that would
10 not be consistent with the conclusion, right?

11 A In this hypothetical situation, just so
12 I understand, are you saying that the findings are
13 empirically supported by the methodology or
14 that -- because in the cases that I recall looking
15 at, it was like taking noise from a radio and
16 saying, oh, I hear the same frequencies that I
17 hear in this Michael Jackson song, so that must be
18 the Michael Jackson song. You can't say that,
19 because you're in the noise.

20 My concern with this was that signal was
21 in the noise, which is the level at which, as
22 scientists we say, as analytical chemists we can't
23 actually say what this is scientifically, and
24 therefore we don't name this compound, because
25 it's not able to be named. And in the one case,

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2 it was missing critical ions, so it didn't even
3 look like the compound.

4 So, yeah, I would say definitely in that
5 case.

6 Q In that case, okay, but if you detect
7 something or you may detect something within the
8 noise level, shouldn't you go back and do more
9 studies to confirm whether it's there?

10 A It depends on what you detect and what's
11 going on and what your scope of the application
12 is. So if you're looking to say whether or not
13 you're seeing something at or above a certain
14 level and you're seeing it at that level, that's
15 one thing. If you're seeing it below that level
16 and you'd like to change your method and redevelop
17 it to go lower, you could opt to go back and study
18 it further.

19 Q Wouldn't you want to do that if you
20 wanted to know for sure whether something was
21 there or not?

22 A It depends on what the goal of the
23 method is. It depends on what the scope is and
24 what levels you're trying to achieve.

25 Q And again as you sit here, and having

1 James P. Kababick

2 looked at this Exhibit 15, it doesn't refresh your
3 recollection about what article you were
4 reviewing?

5 A I don't recall with absolute certainty.

6 Q And what would you need to look at to
7 recall with absolute certainty?

8 A If I had the article, that would be
9 great, or the data.

10 Q The end of the sentence, you say, "The
11 lack of authentication means they could have been
12 testing adulterated oils, and I see more
13 adulterated Geranium EO than clean EO in today's
14 market."

15 Do you see that?

16 A Yes.

17 Q Is your comment based solely on the fact
18 that you think that the oils were not properly
19 authenticated as opposed to what the results of
20 the study were?

21 A Yeah, the -- my concern is, in my
22 research on essential oils I have seen over the
23 years multiple papers discussing the chemistry of
24 oils, and in some cases they were naming compounds
25 which are known to be absolutely synthetic, and

1 James P. Kababick
2 they were making decisions based on the assumption
3 that what they had was natural when they didn't
4 have it.

5 And the NIH established expert panels,
6 which I was involved in, to help researchers make
7 sure that they are doing clinical research on
8 natural products that are actually the natural
9 products they think.

10 So it's very important to have a good
11 chain of custody and authentication on materials,
12 because if you're going to make a conclusion about
13 something present and you don't know if the
14 material has been tampered with, that could be a
15 concern.

16 Q Well, authentication of samples is
17 different than tampering with samples, is it not?

18 A Authentication would be the process of
19 determining if the material appears to be an
20 authentic material. Tampering would be the
21 process of modifying that material.

22 Q Right. So they're two different things?

23 A Yes.

24 Q Okay, and as you sit here today, do you
25 have any facts to suggest that the Geranium plants

1 James P. Kababick
2 that were examined by Drs. Li and Fleming were
3 tampered with?

4 A Tampered with in regard to deliberately
5 adulterated, no.

6 (Whereupon, a short recess was
7 taken.)

8 BY MS. WOOLSON:

9 Q Mr. Kababick, I may have asked you this,
10 and if I did, I apologize for asking it again.

11 This morning you testified that you had
12 done some DMAA testing on extracts of Geranium
13 plants.

14 Do you remember that testimony?

15 A Yeah, there were materials sent to me
16 that were reported to be Geranium plant extracts,
17 but I didn't know for sure if they were Geranium
18 plant extracts.

19 Q With regard to these, the extracts in
20 which you did detect DMAA, did you do that isotope
21 mass spec ratio that you discussed earlier?

22 A No, I didn't, because my goal in that
23 was just to see if it was DMAA and in one case
24 what levels were there, so it wasn't necessary.

25 Q And I take it then you didn't do any

1 James P. Kababick
2 carbon 14 dating analysis that you discussed this
3 afternoon either?

4 A Yeah, that's isotope ratio. Same thing.

5 Q Sorry. My chemistry days are long gone.

6 When you determined the DMAA in those
7 extracts, did you attempt to determine the
8 diastereomer ratio?

9 A No, I didn't.

10 (Exhibit 16 was marked for
11 identification.)

12 BY MS. WOOLSON:

13 Q Showing you what was marked as Exhibit
14 16.

15 (Witness peruses document.)

16 THE WITNESS: Okay.

17 BY MS. WOOLSON:

18 Q Have you seen Exhibit 16 before today?

19 A I don't recall if I have.

20 Q This is a publication from the New
21 Zealand government, correct?

22 A It appears to be so, yes.

23 Q You see on page 3 of 8, the last
24 paragraph, it says, "Evidence suggests it is
25 likely that DMAA does occur naturally in Geranium

1 James P. Kababick
2 plants"?

3 A Yes.

4 Q Have you been asked to comment on the
5 New Zealand government's publication saying that
6 DMAA -- the evidence suggests that DMAA naturally
7 occurs in Geranium plants?

8 A I don't recall that I have, actually.

9 Q And you haven't discussed that with any
10 of your colleagues at AOAC?

11 A I don't recall specifically discussing
12 this.

13 Q If you could turn back to Exhibit 1,
14 which is your report, please, and I'm on page 17.

15 You see under "Expert Report" you list
16 Dr. Brown's report?

17 A Yes.

18 Q So does that refresh your recollection
19 about whether you had looked at Dr. Brown's report
20 before you prepared your report?

21 A I definitely did not.

22 Q You definitely did not look at
23 Dr. Brown's report?

24 A No. I drafted my report, and I --
25 before I finalized my report, I reviewed

1 James P. Kababick
2 Dr. Brown's report and Ikhlas Khan's report. I
3 had not reviewed them prior to drafting my report.

4 Q But you did review it prior to
5 finalizing your report?

6 A Yes, and I made no changes.

7 Q So you didn't include anything about
8 Dr. Brown's biosynthetic argument, did you?

9 A No, I did not.

10 Q And if you could go back to page 3 of
11 your report, paragraph 4, you say, "As one of the
12 leading experts in my field."

13 What is the basis for that statement?

14 A I'm recognized as an expert by the Food
15 and Drug Administration, National Institute of
16 Health, AOAC International, and the United States
17 Pharmacopeia have appointed me to the Council of
18 Experts.

19 Q When you say you're recognized as an
20 expert by FDA, what do you mean?

21 A It means that I satisfied the vetting
22 requirements to serve as an expert on FDA-funded
23 committees in AOAC.

24 Q FDA-funded committees in AOAC?

25 A And also that they recognize my work in

1 James P. Kababick
2 clandestine and drug adulteration analysis for
3 detention samples.

4 Q And when you say you were vetted by the
5 FDA, what does that involve?

6 A The AOAC has to review candidates for
7 the appointments, and they compare that to what
8 FDA expects of an expert to serve in those funded
9 committees.

10 Q What does FDA expect of an expert in
11 those funded committees?

12 A They have to have knowledge of the
13 chemistry of the compound's analytical techniques,
14 validation techniques, and experience in the
15 analysis of various components.

16 Q And is the vetting the same for NIH?

17 A It's similar.

18 Q In what way is it different?

19 A Depending upon the position at NIH, you
20 may or may not need certain types of grant review
21 experience.

22 Q And do you have to meet with or
23 interview with anyone from FDA or NIH in order to
24 be considered an expert?

25 A No. I just had to fill out an

1 James P. Kababick
2 application and submit my CV, and then that
3 process was handled by others.

4 Q Do you know who it was handled by?

5 A In the case of AOAC, it would have been
6 handled by the executive staff, the paid staff.
7 There's an employed staff that administers the
8 organization in Gaithersburg, but I don't recall
9 the exact person that was handling it. It would
10 have been whoever was in charge of the development
11 of the dietary supplement community for the
12 organization.

13 Q Did someone nominate you to become an
14 expert for FDA and NIH?

15 A I was actually asked by one of the
16 scientists at AOAC, based on their experience with
17 my work and my presentations over the years at
18 conferences.

19 Q And what scientist was that?

20 A I'm trying to recall her name. She's
21 moved on. I don't recall her name. I'm sorry.

22 Q Okay. Paragraph 8, we were talking
23 about the grant committees, and I don't think I
24 asked you what R15 and R21 were.

25 A Yeah, R15 grant committees -- R15 grants

1 James P. Kababick
2 are grants specifically designed to expand and
3 advance the science at the undergraduate level, so
4 it's funding that is designed specifically to help
5 students gain a more in-depth research skill set.

6 In relation to this, it was related to
7 things involving natural products, studies of
8 crops, chemistry of crops and such, and the
9 funding mechanism is designed such that the actual
10 undergraduate students get a chance to do the
11 research, more like what they might do in grad
12 school, to kind of spur and advance the level of
13 science they might get.

14 The R21 grants come in for research of
15 natural products from academics, private sector, a
16 variety of parties, and those grants are based on
17 a variety of things, either applying for early
18 studies on pharmacological efficacy, chemical
19 composition, characterization of materials and
20 such.

21 Q Okay. Did you ever attempt to replicate
22 the conditions that were in the Ping study?

23 A No, because you can't replicate them.

24 Q Have you tried to replicate the
25 conditions in the Ping study?

1 James P. Kababick
 2 A No. It would be like trying to put a
 3 gallon of water in this cup. It just cannot be
 4 done. It's against the laws of physics.
 5 Q I take it you have not even attempted to
 6 do that.
 7 A No.
 8 Q Have you done any work regarding
 9 1,4-DMAA?
 10 A No.
 11 Q In paragraph 24 of your report, you're
 12 talking about "clandestine and economic
 13 adulteration."
 14 Do you see that?
 15 A Yes.
 16 Q And you say you've identified
 17 ingredients in products from China that were
 18 "spiked with stimulants, laxatives, erectile
 19 dysfunction drugs, diabetes drugs, antibiotics,
 20 sedatives, psychiatric drugs, bath salts,
 21 cannabinoids" and others, correct?
 22 A That were adulterated, yes.
 23 Q But that doesn't -- strike that.
 24 You're not -- let me start that over
 25 again.

1 James P. Kababick
 2 You're not saying in your report that
 3 you have identified products that were spiked with
 4 DMAA from China, have you?
 5 A In this particular report? You mean
 6 relative to this?
 7 Q In your report, Exhibit 1.
 8 A No, I did not say that in this.
 9 Q Have you been asked -- strike that.
 10 Do you have plans to undertake in the
 11 future any analysis of Geranium plants for DMAA?
 12 A I don't have any plans per se, but I'm
 13 not saying that I wouldn't do that. It would
 14 depend on the situation.
 15 Q But as you sit here today, you've not
 16 been asked to undertake any studies in the future?
 17 A Not at this time, no.
 18 Q And beyond the things that we discussed
 19 this morning, which were the low levels of
 20 detection of DMAA, Dr. Brown's opinion that
 21 there's no pathway, the possibility that DMAA is
 22 in fertilizer, and the studies that did not detect
 23 DMAA, do you have any additional facts upon which
 24 you are relying for your opinion that the DMAA
 25 detected by Li and Fleming was not natural to the

1 James P. Kababick
 2 Geranium plant?
 3 A The fact that the larger body of
 4 scientific evidence does not report finding it,
 5 and that other potential contamination sources,
 6 water, environment, shipping and handling,
 7 degradation, were not evaluated.
 8 Q And when you use the word "potential,"
 9 that means you don't know one way or the other,
 10 right?
 11 A It means that they are possible routes
 12 that should be explored.
 13 Q But as you sit here today, you don't
 14 know one way or the other, do you?
 15 A One way or the other --
 16 Q Whether those are sources of
 17 contamination.
 18 A For the presence of DMAA?
 19 Q Yes.
 20 A No, I don't have specific evidence
 21 showing that those are contamination sources in
 22 this case.
 23 MS. WOOLSON: Okay. I think I'm
 24 done. Just let me do one final review.
 25 MR. O'NEAL: Okay.

1 James P. Kababick
 2 (Whereupon, a short recess was
 3 taken.)
 4 MS. WOOLSON: I have no further
 5 questions.
 6 MR. O'NEAL: I just have one.
 7 EXAMINATION BY COUNSEL FOR PLAINTIFF
 8 BY MR. O'NEAL:
 9 Q Mr. Kababick, you were just previously
 10 talking about paragraph 24 with counsel, is that
 11 correct, of your expert report?
 12 A Yes.
 13 Q Have you, in the course of operating
 14 your laboratory, ever identified any products that
 15 were adulterated with DMAA?
 16 A Yes.
 17 MS. WOOLSON: Objection to form.
 18 BY MR. O'NEAL:
 19 Q And what products were those?
 20 A I tested a raw material that was
 21 supposed to be a Geranium extract, and it was
 22 nearly pure DMAA, and I tested a product that said
 23 it had Geranium extract in it that contained DMAA,
 24 but the DMAA was very high, in excess of
 25 100 milligrams per gram, which would not be

1 James P. Kababick
 2 feasible for a natural source.
 3 Q So then was your previous response to
 4 counsel merely that DMAA was not listed in
 5 paragraph 24?
 6 MS. WOOLSON: Objection to form.
 7 THE WITNESS: Yeah, that's what I
 8 thought was being asked.
 9 MR. O'NEAL: Okay. I have no
 10 further questions.
 11 FURTHER EXAMINATION BY COUNSEL FOR DEFENDANT
 12 BY MS. WOOLSON:
 13 Q Mr. Kababick, why would you not include
 14 that information in your expert report if you
 15 believed those samples were spiked?
 16 A Because I was opining on the Li and
 17 Fleming papers and the discussion of the
 18 naturalness of DMAA.
 19 Q So you would put in your report a
 20 statement that you have investigated or identified
 21 several botanical materials that were spiked with
 22 various substances, but you would leave out DMAA?
 23 A Well, the body of my report was
 24 discussing DMAA. These were additional components
 25 that I identified in a larger picture of my work.

1 James P. Kababick
 2 Q And you omitted DMAA from that exhibit?
 3 A Well, I discuss DMAA in the rest of the
 4 whole report. This was an addition, number 24.
 5 These other things that I have also found showing
 6 that there is a history of adulteration issues and
 7 in so many of these cases, their argument was made
 8 these were naturally occurring, and in many or all
 9 cases, they were ruled not to be.
 10 Q And yet so you left out the two examples
 11 that you claim are evidence of spiking of DMAA
 12 from an expert report about the presence of DMAA?
 13 MR. O'NEAL: Object to the form.
 14 Mischaracterizes his testimony.
 15 THE WITNESS: No, I wouldn't say
 16 that.
 17 BY MS. WOOLSON:
 18 Q And where did these two extracts come
 19 from?
 20 A One was submitted by a client for
 21 testing, and the other one was provided by an
 22 importer.
 23 Q And from where in the world did these
 24 extracts purport to come?
 25 A China.

1 James P. Kababick
 2 Q And the client that submitted the
 3 extract to you, was this the one that you said was
 4 pure DMAA or the one that was 100 milligrams per
 5 gram?
 6 A 100 milligrams per gram or greater.
 7 Q And the client -- did the client
 8 indicate to you where the sample had come from,
 9 i.e., who the manufacturer was?
 10 A No. Just that it was from China.
 11 Q And that's all you know about the sample
 12 was that it came from China?
 13 A Yes.
 14 Q And the extract that was 100 milligrams
 15 per gram, where did that come from?
 16 A That was reported to come from China.
 17 Q And that was sent to you by an importer?
 18 A No. The extract was sent to me by the
 19 client. A pure compound or near pure compound was
 20 sent to me by an importer.
 21 Q So let me start over.
 22 The pure -- the product that was
 23 purported to be an extract but you tested and
 24 believed to be pure DMAA, was that sent to you by
 25 an importer?

1 James P. Kababick
 2 A Yes.
 3 Q And you were told that that sample came
 4 from China?
 5 A Right. Yes. That's correct.
 6 Q And the 100 milligrams per gram sample,
 7 that came from a client?
 8 A Yes.
 9 Q And you were told that came from China?
 10 A Yes.
 11 Q And was this client an entity that was
 12 interested in manufacturing or selling or using
 13 this extract?
 14 A Yes. They were interested in utilizing
 15 it in their product.
 16 Q And what was their product?
 17 A I don't know exactly what it was. They
 18 said they had a formulation they were working on.
 19 Q You don't even know what kind of
 20 category the product was in?
 21 A No, I don't. I don't remember if it was
 22 a sports or a weight loss or what.
 23 Q And other than these two extracts, you
 24 have not identified any other product, natural
 25 products that were purportedly spiked with DMAA?

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1 James P. Kababick
 2 MR. O'NEAL: Object to the form.
 3 THE WITNESS: I'm not sure I
 4 understand the question.
 5 BY MS. WOOLSON:
 6 Q What don't you understand about the
 7 question?
 8 A Are you saying have I identified
 9 products that were claimed to be spiked with DMAA?
 10 Is that what you asked?
 11 Q No. I asked you: Other than these two
 12 extracts that you just now remembered, did you
 13 test any other natural products that you're
 14 claiming were spiked with DMAA?
 15 A I believe I did.
 16 Q And what natural products were those?
 17 A One of those was a weight loss product,
 18 but the goal of the analysis was not to test for
 19 DMAA. It was related to other compounds, but it
 20 had a DMAA claim on the label. I don't know if it
 21 actually had DMAA in it, because that was outside
 22 the scope of what I was working on.
 23 Q So you didn't actually test for DMAA?
 24 A Not in that one, no. It wasn't
 25 requested.

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1 James P. Kababick
 2 Q So when is the last time you ran a DMAA
 3 detection test for a sample?
 4 A It's been several years, to my
 5 knowledge.
 6 Q So these two examples of extracts that
 7 you identified, how many years ago were they?
 8 A I believe they were around the time of
 9 this paper, 2012, right in there. I'd have to
 10 check to be sure, though.
 11 MS. WOOLSON: Subject to the
 12 request for information about the identities
 13 of major customers of Flora Labs and the
 14 identities of the customers for whom these
 15 extracts tests were run, I have no further
 16 questions.
 17 MR. O'NEAL: Okay. We'll read and
 18 sign.
 19 (Signature having not been
 20 waived, the deposition of
 21 JAMES P. KABABICK was
 22 concluded at 3:27 p.m.)
 23
 24
 25

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1 James P. Kababick
 2 Q What was the weight loss product?
 3 A I don't recall the exact name of the
 4 weight loss product.
 5 Q Other than the two extracts and now this
 6 weight loss product that you didn't test for DMAA,
 7 any other products, natural products you believe
 8 that you've tested were spiked with DMAA?
 9 A I'm not recalling any offhand. There
 10 may have been others, but due to the time that's
 11 passed and the tens of thousands of samples I've
 12 analyzed, I don't recall specifically.
 13 Q And I believe we talked -- it might have
 14 been this morning, it might have been this
 15 afternoon -- about your lab developing methods for
 16 detection for DMAA. These three examples that
 17 you've just given me, were they detected -- well,
 18 the two examples where you actually tested for
 19 DMAA, were they tested using this method that your
 20 lab developed?
 21 A Yes, they were.
 22 Q And I believe you told me that you no
 23 longer -- are you no longer offering the DMAA
 24 detection, or is it the quantification?
 25 A The quantification.

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1 James P. Kababick
 2
 3
 4
 5
 6 ACKNOWLEDGEMENT OF WITNESS
 7 I, JAMES P. KABABICK, do
 8 hereby acknowledge that I have read and
 9 examined the foregoing testimony, and the
 10 same is a true, correct and complete
 11 transcription of the testimony given by me,
 12 and any corrections appear on the attached
 13 Errata sheet signed by me.
 14
 15
 16
 17 _____
 18 (DATE) (SIGNATURE)
 19
 20
 21
 22
 23
 24
 25

1 ERRATA SHEET
 2 Case Name:
 3 Deposition Date:
 4 Deponent:
 5 Pg. No. Now Reads Should Read Reason
 6 _____
 7 _____
 8 _____
 9 _____
 10 _____
 11 _____
 12 _____
 13 _____
 14 _____
 15 _____
 16 _____
 17 _____
 18 _____
 19 _____
 20 _____
 21 _____
 22 Signature of Deponent
 23 SUBSCRIBED AND SWORN BEFORE ME
 24 THIS ____ DAY OF _____, 2016.
 25 _____
 (Notary Public) MY COMMISSION EXPIRES: _____

1 James P. Kababick
 2
 3
 4
 5
 6 CERTIFICATE OF SHORTHAND REPORTER -- NOTARY PUBLIC
 7 I, Laurie Donovan, Registered
 8 Professional Reporter, Certified Realtime
 9 Reporter, the officer before whom the
 10 foregoing deposition was taken, do hereby
 11 certify that the foregoing transcript is a
 12 true and correct record of the testimony
 13 given; that said testimony was taken by me
 14 stenographically and thereafter reduced to
 15 typewriting under my supervision; and that I
 16 am neither counsel for, related to, nor
 17 employed by any of the parties to this case
 18 and have no interest, financial or otherwise,
 19 in its outcome.
 20 IN WITNESS WHEREOF, I have hereunto
 21 set my hand and affixed my notarial seal this
 22 23rd day of November, 2016.
 23 My commission expires: March 14th, 2021
 24
 25 _____
 LAURIE DONOVAN
 NOTARY PUBLIC IN AND FOR
 THE DISTRICT OF COLUMBIA

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