IN THE SUPREME COURT OF THE STATE OF CALIFORNIA

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| **THE PEOPLE OF THE STATE OF CALIFORNIA,** | ) | |
| | ) | |
| | ) | No. S198434 |
| Plaintiff and Respondent, | ) | |
| | ) | |
| v. | ) | |
| | ) | |
| **ZACHARY EDWARD DAVIS,** | ) | |
| | ) | |
| Defendant and Appellant. | ) | |
| | ) | |



Second Appellate District, Div. 4, No. B229615
Los Angeles County Superior Court, No. BA367204
The Honorable Barbara R. Johnson, Judge

***APPELLANT'S REPLY BRIEF ON THE MERITS***

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## ARGUMENT

### I. RESPONDENT CONCEDES WHETHER SUBSTANTIAL EVIDENCE SUPPORTS APPELLANT'S CONVICTIONS MUST BE RESOLVED SOLELY ON THE BASIS OF THE EVIDENCE AT TRIAL, WITHOUT REFERENCE TO MATTERS JUDICIALLY NOTICED BY THE COURT OF APPEAL

Respondent concedes MDMA "is not an enumerated controlled substance." (RABM 6; see also RABM 6, fn. 2.) Therefore, appellant could be convicted of selling and possessing MDMA only if there was substantial evidence MDMA contained methamphetamine or was substantially similar to methamphetamine in chemical structure or effect. (RABM 6.) In this case the Court of Appeal held there was sufficient evidence to prove MDMA contained methamphetamine. (Slip opn. p. 11.) It supported its

conclusion by citing to common sense and taking judicial notice of learned treatises which state MDMA is derived from methamphetamine and amphetamine. (Slip opn. at pp. 9-10.)

In his opening brief on the merits, appellant argued the Court of Appeal acted improperly in taking judicial notice of learned treatises to find there was sufficient evidence to prove the pills he sold contained a controlled substance. He contended the appellate court's actions involved improper fact-finding and violated his constitutional right to have his guilt determined solely on the basis of evidence presented to the jury. (See AOBM 28-43.) Respondent offers no contrary argument. By failing to address the issue, respondent impliedly concedes its merit. (*People v. Bouzas* (1991) 53 Cal.3d 467, 480 [when People ignore a critical point in their brief, the point is apparently conceded].) Respondent therefore concedes a reviewing court cannot take judicial notice of matters which could have been presented in the trial court--but were not--and then rely on that information to find sufficient evidence supports a conviction. (See AOBM 41-42.) Respondent also concedes the Court of Appeal violated appellant's constitutional right to a jury trial by developing a factual record in addition to the evidence presented at trial and citing that information to find substantial evidence supported the convictions. (See AOBM 32-37.)

Respondent's sole reference to appellant's argument is in a footnote that asserts the Court of Appeal did not develop an additional factual

record, but merely "verified" facts which were common knowledge. (See RABM 14, fn. 4.) This assertion is incorrect. The appellate court relied on both common sense and matters judicially noticed when it found sufficient evidence existed to support the conviction. (See slip opn. p. 11.) The issue whether the appellate court violated defendant's constitutional rights requires no further argument, however, as respondent does not contend the matters judicially noticed can be considered in resolving the question before this court. Rather, it asserts "judicial notice is not required in order to affirm the conviction." (RABM 14, fn. 4.) Thus, respondent concedes that whether there was substantial evidence to prove MDMA is a controlled substance must be based solely on the record before the jury, without resort to the learned treatises consulted by the Court of Appeal. Given this concession, appellant presents no further argument on the third point raised in his opening brief on the merits.

Respondent's sole argument is that based on MDMA's chemical name, the jury could rely on "common knowledge" to "infer that methylenedioxymethamphetamine contains amphetamine or methamphetamine." (RABM 7.) As demonstrated *post*, this contention has no merit.

## II. RESPONDENT'S OWN ANALYSIS UNDERMINES THE ARGUMENT THAT JURORS CAN RELY ON COMMON SENSE TO FIND A CHEMICAL COMPOUND "CONTAINS" ANOTHER CHEMICAL COMPOUND MERELY BASED ON THE CHEMICAL NAMES

Since MDMA is not a listed controlled substance, the prosecution could have proved its possession was illegal in two ways. First, it could have presented evidence MDMA contains amphetamine or methamphetamine. (Health & Saf. Code, § 11055, subds. (d)(1), (2).) Second, it could have attempted to prove MDMA is an analog of amphetamine or methamphetamine by presenting evidence MDMA has a substantially similar chemical structure, or a substantially similar effect, as amphetamine or methamphetamine. (Health & Saf. Code, § 11401, subds. (a)-(b).) Respondent does not contend there was any evidence presented at trial from which a jury could find beyond a reasonable doubt that MDMA has a similar chemical structure or similar effects as amphetamine or methamphetamine. Respondent's sole contention is that by resorting to "common knowledge" jurors could infer a chemical compound named methylenedioxymethamphetamine contains methamphetamine since "methamphetamine" appears in its name. (RABM 7.)

Respondent's own analysis undermines the argument jurors can rely on common sense to find a chemical compound "contains" another chemical compound merely based on chemical names. Respondent fails to

differentiate between lay common knowledge, based on ordinary human experience, and common knowledge among experts in a subject, based on specialized learning. Respondent's citation to materials from the National Institute on Drug Abuse and to *Chemical Principles,* a learned treatise, contradicts the claim the contents of chemical compounds is a matter of lay common knowledge, or in the words of the Court of Appeal, "common sense." (Slip opn. p. 6.)

Furthermore, the sources cited by respondent, like the learned treatises judicially noticed by the Court of Appeal, do not support the conclusion MDMA "contains" amphetamine or methamphetamine. Rather, those treatises state MDMA is a *derivative* of amphetamine, and has a *similar structure* to methamphetamine. This would support a finding MDMA is an *analog* of methamphetamine. However, none of the sources cited by respondent state MDMA *contains* methamphetamine. The experts and specialists in chemistry never make that assertion, which demonstrates reliance on "common sense" to determine matters of chemistry leads to erroneous conclusions.

Respondent's flawed analysis begins with its failure to distinguish between lay common knowledge ("common sense") and common knowledge possessed by experts. "Common sense" is grounded in ordinary human experiences. (See *Raven H. v. Gamette* (2007) 157 Cal.App.4th 1017, 1029-1030 [jurors are allowed to draw common sense conclusions by

drawing upon ordinary human experience]); *People v. Forbes* (1996) 42 Cal.App.4th 599 604 [jurors can rely on "ordinary experience and general knowledge" to determine meaning of "rectal area"].) This is different than common knowledge among experts trained in a field such as chemistry. Here, the appellate court took judicial notice of "facts which are widely accepted as established by *experts and specialists* in the natural . . . sciences." (Slip opn. p. 10, italics added.) Facts which are "widely accepted" (common knowledge) among experts can be learned by consulting "treatises, encyclopedias, almanacs and the like or by persons learned in the subject matter." (*Ibid.,* quoting *Gould v. Maryland Sound Industries, Inc.* (1995) 31 Cal.App.4th 1137, 1145 ("*Gould*"), internal quotation marks omitted.) Common knowledge among experts is not the same as the "common sense" lay jurors possess.

Most of the examples respondent lists of *lay* "common knowledge" involve matters based on ordinary human experience, such as scent travels through air (*People v. Mitchell* (2003) 110 Cal.App.4th 772, 789), vacuum devices pick up particles (*ibid.*), the advances of science are increasing life expectancy (*Brubaker v. Beneficial Standard Life Ins.* Co. (1955) 130 Cal.App.2d 340 345), and the intoxicating effects of alcohol diminish over time. (*In re Martin* (1962) 58 Cal.2d 509, 512.) (See ARBM 9). These are matters of common knowledge because lay people have used vacuum cleaners, have smelled pleasant odors wafting from a kitchen or unpleasant

ones coming out of a latrine, have gotten drunk but sobered up as time passes, and have experienced people living longer as health care improves. None of these examples support the contention ordinary people correctly can draw conclusions about the composition of chemical substances merely by referring to its name.[1] To the contrary, in order to obtain a correct conclusion, a person must refer to a treatise on chemistry or consultation with a person "learned in the subject matter," an expert.

Respondent's common sense argument is undermined by following the common knowledge assertion with a reference to the National Institute on Drug Abuse's section on "The *Science* of Drug Abuse and Addiction." (See www.drugabuse.gov, cited at RABM pp. 2, 7, italics added.) Matters commonly known by everyone, such as drunk people sober up over time, odors travel through space, or vacuum cleaners pick up particles, do not require citation to a source concerning the science of the issue. For example, the opinion which states it is common knowledge vacuums pick up particles did not cite to a reference about the science of vacuum cleaners to support that assertion. Respondent's need to cite a scientific source

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[1] One example given by respondent is that is that it is "common knowledge that water activates the lime in cement." (*Simmons v. Rhodes & Jamieson, Limited* (1956) 46 Cal.2d 190, 195; see RABM p. 9.) *Simmons* involved a lawsuit brought after a man was burned when he poured a concrete floor in his home. While it may have been common knowledge in 1956, today it is doubtful lay people commonly know concrete even contains lime, much less that adding water to concrete activates the lime, causing it to heat up and create the risk of burns from exposure to wet concrete.

undercuts the contention jurors can find MDMA contains methamphetamine by using common sense.

Respondent claims, "[i]t is a matter of common knowledge that chemical compound names detail the composition of the compound." (RABM, p. 8.) To support this assertion, respondent cites Zumdahl, *Chemical Principles,* a treatise which, as the appellate court recognized, is a source which can be used to verify "facts which are widely accepted as established by *experts and specialists* in the . . . physical . . . sciences." (Slip opn. p. 10, quoting *Gould, supra,* 31 Cal.App.4th at p. 1145, italics added.) *Chemical Principles* does not list facts which are common knowledge to everyone. It contains information which is common knowledge ("facts which are widely accepted") *among experts*. As the Court of Appeal explained, quoting *Gould*, facts which are widely accepted among experts can be verified by reference to treatises or by reference to "*persons learned in the subject matter*", i.e., experts. (See slip opn. p. 10.) Therefore, the composition of chemical compounds requires the testimony of an expert, who can explain principles which are common knowledge among experts and specialists in the physical sciences.

Common sense is the opposite of knowledge possessed by experts. Common sense is grounded in ordinary, everyday experience. Common knowledge possessed by experts is grounded in learning and experience in the specialized subject matter involved, whether it is blood splatter,

fingerprint identification or chemistry. Respondent's argument is flawed from its onset because it fails to distinguish between lay common knowledge and common knowledge among experts.

Citing *People v. Love* (1961) 56 Cal.2d 720, respondent argues common lay knowledge encompasses "well known laws of natural science." (RAMB 8.) That opinion, however, never explains what is included in the "well known laws of natural science." Respondent cites no source which states determining the chemical composition of compounds by reference to the compound's name is a well-known law of natural science. Since respondent found it necessary to cite a scientific treatise to support this contention (see RAMB 8), the chemical composition of compounds is evidently not common knowledge among lay people. The general assertion in *Love* does not aid respondent.

In his opening brief on the merits appellant explained the Court of Appeal's assertion MDMA "is produced from methamphetamine by the addition of methylenedioxy" (slip opn. p. 11) exposes the fallacy of the argument that the composition of chemical compounds is a matter jurors can resolve by applying common sense. (See AOBM 14-15.) Respondent does not dispute this common sense conclusion is mistaken. MDMA is made from safrole, isosafrole, piperonal or 3,4-methylenedioxyphenyl-2-propanone. Methamphetamine is made from ephedrine or pseudoephedrine.

(See AOBM 15 and sources cited therein.) MDMA is *not* made by adding methylenedioxy to methamphetamine.

Respondent does not defend as correct the appellate court's assertion about how MDMA is made. Respondent's only rejoinder is that the appellate court's erroneous conclusion is irrelevant. (RABM 10.) To the contrary, the Court of Appeal's mistaken assertion exposes the fallacy of its premise that the composition of chemical compounds can be discerned by a common sense evaluation of the compound's name.

The view propounded by the Court of Appeal and respondent is based on an erroneous premise: the composition of chemical compounds is a matter of ordinary human experience. An example from ordinary human experience exposes the erroneous approach advocated by respondent and the Court of Appeal. Take, for example, the substance "garlicmashedpotatoes" using the Court of Appeal's analysis. Based on ordinary human experience, one can accurately assert "[garlicmashedpotatoes]'s name demonstrates that it is produced from [mashed potatoes] by the addition of [garlic]", and therefore one also can accurately conclude "it may be inferred that [garlicmashedpotatoes] contains some quantity of [mashedpotatotes] or [potatoes]." (Slip opn. p. 11.)

This common sense analysis, based on ordinary human experience involving cooking, does not translate to the analysis of chemical

compounds. The appellate court's assertion, "MDMA's name demonstrates that it is produced from methamphetamine by the addition of methylenedioxy" is mistaken. (See AOBM 15.) Respondent presents no contrary argument. The assertion "it may be inferred that MDMA contains some quantity of methamphetamine or amphetamine" is equally mistaken, as it is based on the same erroneous premise: the composition of chemical compounds can be discerned by a common sense interpretation of chemical names.

In fact, the scientific authority cited by respondent, like the authority cited by the Court of Appeal, does not support the conclusion MDMA *contains* amphetamine or methamphetamine. No treatise uses such language to explain the relationship between MDMA and methamphetamine. The website www.drugabuse.gov/publications/teaching-packets/neurobiology-ecstasy/section-i/2-define-ecstasy (cited at RABM 2-3, 7) nowhere states MDMA "contains" methamphetamine. Rather, like the scientific treatises cited by the Court of Appeal (see slip opn. pp. 10-11), the website says: "Ecstasy is a *derivative* of amphetamine." (Italics added.) It adds, MDMA "has *a similar structure* to methamphetamine." (Italics added.) The statement MDMA is a derivative or has a similar structure to methamphetamine is to say it is an *analog* of methamphetamine, namely, "A substance the chemical structure of which is substantially similar to the chemical structure of [methamphetamine]." (See

Health & Saf. Code, § 11401, subd. (b).) The source cited by respondent does not support the finding MDMA contains methamphetamine. It is apparent respondent could find no source which states MDMA "contains" methamphetamine or amphetamine.

Respondent asserts the treatises consulted by the Court of Appeal merely verified the conclusion common knowledge can be applied to determine MDMA contains methamphetamine based solely on its chemical name. The cited treatises, however, lend no support to the conclusion MDMA "contains" methamphetamine. Like the source cited by respondent, the treatises consulted by the appellate court state MDMA is a derivative of methamphetamine, not that it "contains" methamphetamine. (See slip opn. pp. 10-11.)

In his opening brief on the merits appellant pointed out the analysis in *United States v. Ching Tan Lo* (9th Cir. 2006) 447 F.3d 1212 (*Lo*) showed expert testimony is needed to determine whether a chemical compound contains another chemical, or whether a new substance is different than its component parts. (See AOBM 17-18.) Respondent argues federal cases are not controlling in this court and the federal controlled substance statute is different from California's statute. (RABM 12.) These contentions are irrelevant. Appellant did not cite *Lo* as legal precedent or to argue how California's controlled substance statute should be interpreted. Appellant cited *Lo* because it illustrates why expert testimony is necessary

to determine whether a chemical substance (in that case, ma huang extract) contains another chemical (in that case, ephedrine). The analysis found in *Lo* and the expert testimony in that case support appellant's contention expert testimony (or a stipulation) is necessary to support a finding MDMA is a controlled substance on the basis it contains methamphetamine.

Appellant has demonstrated respondent's analysis does not support its assertion there was sufficient evidence presented at trial to sustain a finding MDMA contains methamphetamine or amphetamine. Proof of that fact requires expert testimony or a stipulation. It is not a matter of common knowledge grounded in ordinary human experience. Therefore, appellant's convictions must be reversed because they were based on insufficient evidence.

## III. RESPONDENT, LIKE THE COURT OF APPEAL, IMPROPERLY SEEKS TO ADD TO THE EVIDENCE PRESENTED AT TRIAL BY REFERRING TO A WEBSITE AND A TREATISE

Appellant demonstrated in his opening brief on the merits that taking judicial notice is a form of evidence, and that the appellate court erred when it consulted evidence outside the record at trial to find sufficient evidence supported appellant's convictions. (AOBM 20-27.) Respondent never addresses this issue. Its sole response, in a footnote, is that the appellate court was not developing an additional factual record but merely "verify[ing] the facts it already deemed to be common knowledge."

(RABM 14, fn. 4.) Respondent, like the Court of Appeal, felt compelled to go beyond the record at trial by citing a website and a scientific treatise to support its contention the chemical components of a compound can be gleaned on the basis of common lay knowledge. (See RABM 2-3, 7, 8.) No doubt respondent's view is that it was merely "verifying" a matter of common knowledge. However, citing facts from websites and learned treatises to argue substantial evidence supports a conviction is to go beyond the trial record, which is improper when evaluating the sufficiency of the evidence.

Respondent cites no authority to refute the cases which state judicial notice is a form of evidence, a substitute for formal proof. (See AOBM 21.) The appellate court's resort to judicial notice was "a substitute for formal proof." (*Post v. Prati* (1979) 90 Cal.App.3d 626, 633, citation and italics omitted.) Judicial notice is never used to merely "verify" what is common knowledge among lay people. Courts do not "verify" facts which are commonly known by taking judicial notice of scientific treatises. Rather, the appellate court *supplemented* the evidence presented at trial by taking judicial notice of treatises which contain "facts which are widely accepted as established by *experts and specialists* in the natural . . . sciences." (Slip opn. p. 10, italics added.) Respondent did the same thing by citing a scientific treatise and a website on the science of drug abuse. If a fact essential to the prosecution is a matter of common knowledge, there is no

need to verify that commonly known fact by consulting scientific treatises and websites on science, the equivalent of expert testimony. Furthermore, citing to websites and scientific treatises is to go outside the record of the evidence at trial, and is improper.

Respondent never addresses appellant's argument a juror would commit misconduct if she or he consulted the learned treatises cited by the appellate court. (See AOBM 26-27.) By failing to address the argument, respondent impliedly concedes its merit. (*People v. Bouzas, supra*, 53 Cal.3d at p. 480.) It would have been misconduct if a juror had consulted the website for the National Institute on Drug Abuse, learned MDMA is a derivative of methamphetamine, and decided appellant therefore was guilty of possessing a controlled substance because the website proved MDMA contains methamphetamine. (See *People v. Karis* (1988) 46 Cal.3d 612, 645 [misconduct for a juror to look up the definition of "mitigate" in a dictionary]; *Glage v. Hawes Firearms Co.* (1990) 226 Cal.App.3d 314 [prejudicial misconduct to look up definition of "preponderance" and share it with other jurors].)

CALCRIM No. 201 specifically warns the jury, "*Do not use the Internet [or] a dictionary* in any way in connection with this case." (Italics added.) Yet respondent uses the Internet to support the argument there was sufficient evidence to sustain the conviction. The Court of Appeal cited scientific dictionaries to reach its conclusion. It would have been

misconduct had a juror consulted the website and treatise cited by respondent, or the scientific dictionaries cited by the appellate court, to conclude MDMA is a controlled substance. It is equally improper for respondent to rely on a website and a scientific treatise to argue there was sufficient evidence to support the convictions.

Respondent's citation to the "Science of Drug Abuse and Addiction" section of the website for the National Institute of Drug Abuse demonstrates there was insufficient evidence at trial to prove MDMA was a controlled substance. Consulting a website on the science of drugs is the opposite of applying common sense to draw a conclusion based on ordinary human experience. It is equivalent to consulting an expert. Respondent's cite to a website on the science of drug abuse unwittingly supports appellant's contention expert testimony is necessary to support the finding MDMA is a controlled substance.

## IV. IT IS IRRELEVANT THERE WAS NO CHALLENGE TO THE SUFFICIENCY OF EVIDENCE IN THE TRIAL COURT, AND REQUIRING EXPERT TESTIMONY IS NOT CONTRARY TO LEGISLATIVE INTENT

In a footnote, respondent argues "appellant effectively conceded at trial that MDMA constitutes a controlled substance." (RABM 7, fn. 3.) This comment is properly relegated to a footnote since it is irrelevant. On appeal an appellant can challenge the sufficiency to prove an element of a crime even if that element was never contested at trial, and even if it was

conceded during closing argument. There is no requirement a sufficiency issue must be argued in the trial court before it can be raised on appeal. (*People v. Butler* (2003) 31 Cal.4th 1119, 1126.) To raise the issue appellant only had to demand a jury trial and timely file a notice of appeal. (*People v. Rodriguez* (1998) 17 Cal.4th 253, 262.) "In this . . . he did not fail. Thus, the challenge to the sufficiency of the evidence is properly before [this court]." (*Ibid.*)

Respondent also argues California law on controlled substances nowhere requires expert testimony to prove a mixture contains a controlled substance. (RABM 13-14.) This is beside the point. An essential element of possessing a controlled substance is proof the thing possessed is a controlled substance. Although the statute makes no reference to using an expert to prove this essential element, narcotics prosecutions typically include the testimony of a criminalist who tested the substance in a laboratory and based on those scientific tests concluded it was a controlled substance. (See e.g. *People v. Low* (2010) 49 Cal.4th 372, 378 [criminalist tested the crystal substance that defendant brought into jail and found it contained methamphetamine]; *People v. Rubacalba* (1993) 6 Cal.4th 62, 64 [criminalist testifies she tested substance seized from defendant and determined it contained cocaine]; *People v. Howell* (1990) 226 Cal.App.3d 254, 260 [chemist testified defendant possessed "cocaine hydrochloride"].) The essential element the object possessed is a controlled substance cannot

be established by merely showing jurors the object recovered from a defendant and asking jurors to employ their common knowledge to find it is a prohibited controlled substance. Expert testimony (or a stipulation) is needed to prove this essential element.

Similarly, when the substance possessed by a defendant is not a listed controlled substance, expert testimony is required to establish the substance contains a controlled substance or has a substantially similar chemical structure or effect as a listed controlled substance. Holding expert testimony or a stipulation is necessary to prove this essential element is not contrary to legislative intent. Furthermore, since chemists and police officers routinely testify in narcotics prosecutions, it will present no burden to require the chemist testify MDMA contains methamphetamine or has a similar chemical structure to methamphetamine, or to require a police officer testify MDMA has an effect substantially similar to methamphetamine. Such testimony is necessary to prove the essential element the substance possessed is a controlled substance. As the section *post* demonstrates, such testimony also provides the defendant an opportunity to present contrary expert testimony.

## V. INSUFFICIENT EVIDENCE EXISTED AT TRIAL TO PROVE MDMA IS AN ANALOG OF METHAMPHETAMINE BECAUSE THAT PROPOSITION IS SUBJECT TO DISPUTE

Respondent does not contend there was sufficient evidence at trial to prove MDMA is an analog of methamphetamine because it has a substantially similar chemical structure, or a substantially similar effect, as amphetamine or methamphetamine. (See Health & Saf. Code, § 11401, subds. (a)-(b).) Respondent solely contends there was sufficient evidence to prove MDMA contains methamphetamine. (RABM 2, 7.) By failing to argue the point, respondent concedes there was insufficient evidence to prove MDMA is an analog of methamphetamine. This implied concession is appropriate since the question whether MDMA is an analog of methamphetamine is subject to dispute. If the prosecution had presented expert testimony to support this finding, a defendant could have presented contrary expert testimony. (See, e.g., *People v. Silver* (1991) 230 Cal.App.3d 389 [prosecution and defense present experts with differing opinions on the question whether MDMA has a chemical structure substantially similar to methamphetamine].)

Whether MDMA is an analog to methamphetamine or a unique substance in its own right is a matter of dispute. *Stedman's Medical Dictionary* defines MDMA as "a mescaline analog" (*The American Heritage® Stedman's Medical Dictionary*. Houghton Mifflin Company. 10

May. 2012. <Dictionary.com http://dictionary.reference.com/browse/mdma). In *Structure-Activity Relationships of MDMA and Related Compounds: A New Class of Psychoactive Agents?,* David Nichols and Robert Oberlender propose MDMA is a member of "a novel pharmacological class named entactogens." (Nichols and Oberlender, *Structure-Activity Relationships of MDMA and Related Compounds: A New Class of Psychoactive Agents? in* Ecstasy: The Clinical, Pharmacological and Neurotixicological Effects of the Drug MDMA (1990) pages 105-131 (Peroutka edit., 1990).) Based on drug tests on rats, Nichols and Oberlender concluded "[s]uggestions that the pharmacology of MDMA is essentially the same as that of amphetamine are clearly not warranted by the data." (*Id.* at p. 125.) They listed several points which "highlight the differences between entactogens and stimulants." (*Id.* at p. 125.) They hypothesize that entactogens, including MDMA, "represent a unique drug class." (*Id.* at p. 112.) Whereas stimulants such as amphetamine primarily impact the dopamine pathways in the brain (*id.* at p. 112), entactogens such as MDMA primarily impact the serotonin pathways. (*Id.* at p. 125.)

Nichols and Oberlender suggest the unique properties of entactogens could have important therapeutic uses. (*Id.* at pp. 125-126.) Validating this hypothesis, researchers have found MDMA, with its unique properties, has yielded "substantial benefits for those afflicted with a variety of disorders", including post-traumatic stress disorder, when used in combination with

psychotherapy. (M. C. Mithoefer, Mark T. Wagner, et al., *Durability of improvement in posttraumatic stress disorder symptoms and absence of harmful effects or drug dependency after 3,4-methylenedioxymethamphetamine-assisted psychotherapy: a prospective long-term follow-up study*, Journal of Psychopharmacology, 20 November 2012 [found at http://jop.sagepub.com/content/early/2012/08/29/0269881112456611].) The authors noted "MDMA produces unique changes in emotions in humans through a complex combination of pharmacological effects. MDMA is not only a monoamine releaser with particularly prominent effects on serotonin but it also elevates serum oxytocin, which is a neuropeptide believed to play a role in affiliation and bonding in mammals." (*Id.* at p. 2, citations omitted.) The therapy study using MDMA by Michael and Ann Mithoefer is also reported in the November 20, 2012 edition of the *New York Times*. (http://www.nytimes.com/2012/11/20/health/ecstasy-treatment-for-post-traumatic-stress-shows-promise.html?pagewanted=all.)

Had the prosecutor presented expert testimony in an effort to prove MDMA is a methamphetamine analog, the defense could have presented expert testimony in opposition. This is not a matter which can be resolved by resort to common lay knowledge or by a trial court taking judicial notice that MDMA is a methamphetamine analog. Expert testimony (or a stipulation) is necessary to prove MDMA contains methamphetamine or is

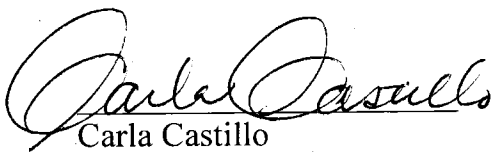
a methamphetamine analog. In this case, there was no expert testimony or stipulation to prove whether MDMA was a controlled substance on that basis. In the absence of substantial evidence to prove MDMA is a controlled substance, Davis's convictions must be reversed.

## CONCLUSION

For the foregoing reasons, and those set forth in appellant's opening brief on the merits, this court should find the Court of Appeal erred when it held substantial evidence supported Davis's convictions.

Dated: November 30, 2012.

Respectfully submitted,



Carla Castillo
Attorney for Appellant,
Zachary Davis

## CERTIFICATE OF COMPLIANCE WITH RULE 8.360(B)

I, Carla Castillo, counsel for Zachary Davis, certify pursuant to the California Rules of Court, rule 8.360(b), that the word count for this document is 4,487 words, excluding the tables, this certificate, and the caption on page one. This document was prepared in Word 2007 and this is the word count generated by the program for this document.

Executed December 1, 2012 at Berkeley, California.

Carla Castillo
Attorney for Appellant,
Zachary Davis

**CERTIFICATE OF SERVICE BY MAIL**
**SUPREME COURT OF CALIFORNIA**
***People v. Zachary Davis*, Case No. S198434**

I declare that I am employed in the City of Berkeley, County of Alameda, State of California. I am over the age of eighteen years and not a party to the within cause. My business address is 1563 Solano Avenue, PMB 286, Berkeley, CA 94707. On the date shown below I served the within *Appellant's Reply Brief on the Merits* on the interested parties in said cause, by placing a true copy thereof in a sealed envelope with postage thereon fully prepaid in the United States mail at Berkeley, California, addressed as follows:

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I declare, under penalty of perjury, the foregoing is true and correct.

Executed in Berkeley, California, this 3rd day of December, 2012.

Carla Castillo