Peeling Back the Curtain on Drug Testing

Disclosures

- I am not advertising or promoting for any instrument manufacturer or vendor. All the equipment pictured is actual instrumentation that I have used in the labs that I have worked at.

Forensic Toxicology

- Toxicology is a science that deals with poisons and their effect.
- Forensic toxicology is the application of toxicology as it applies to law.

Different Subgroups of Toxicology

- Postmortem Forensic Toxicology
- Human Performance Toxicology
- Forensic Drug Testing

First Things First

- Alcohol determination

Step Two – Screening

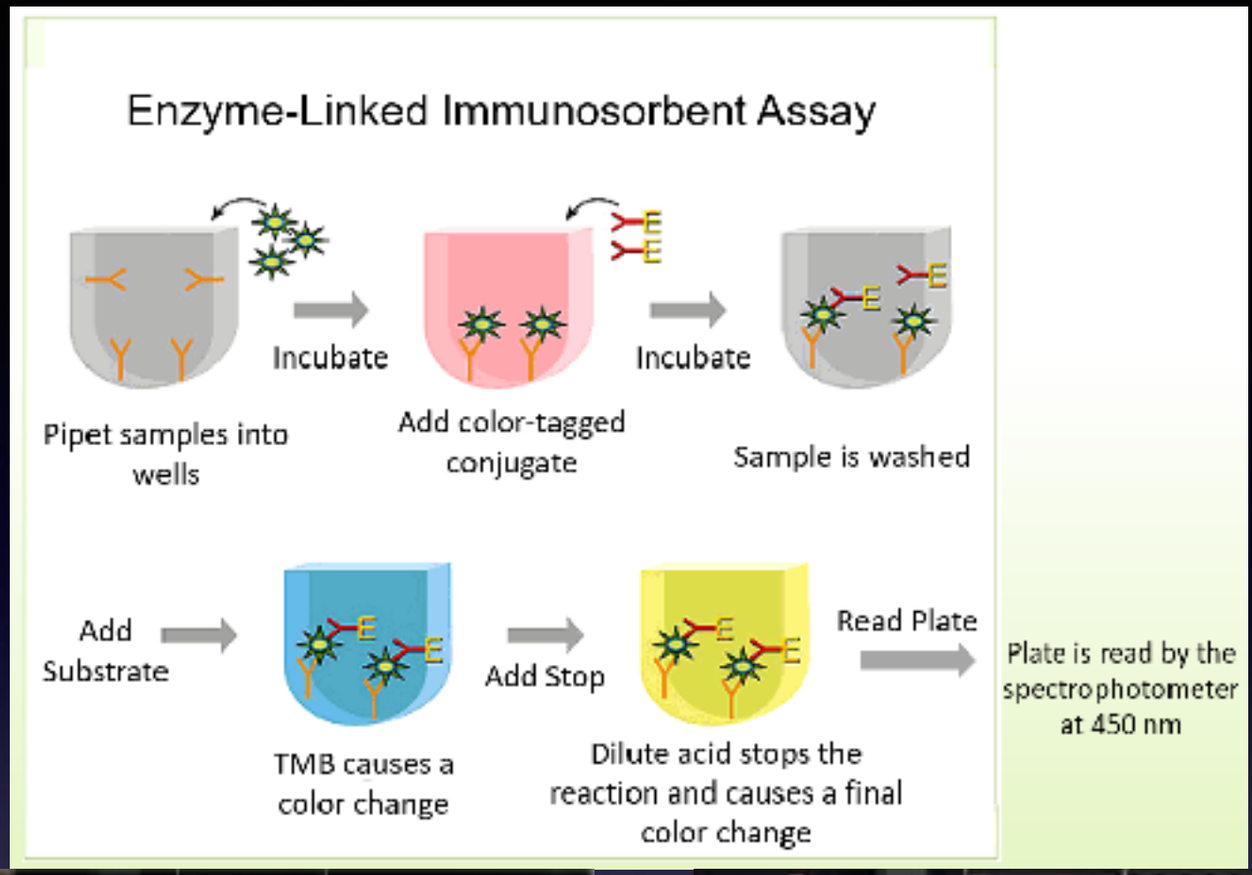
- often based on immunoassay technology
- more drug – more binding - less “color” produced – more instrument detector response
- numerous commercial manufacturers
- designed for high throughput instrumentation or on-site devices

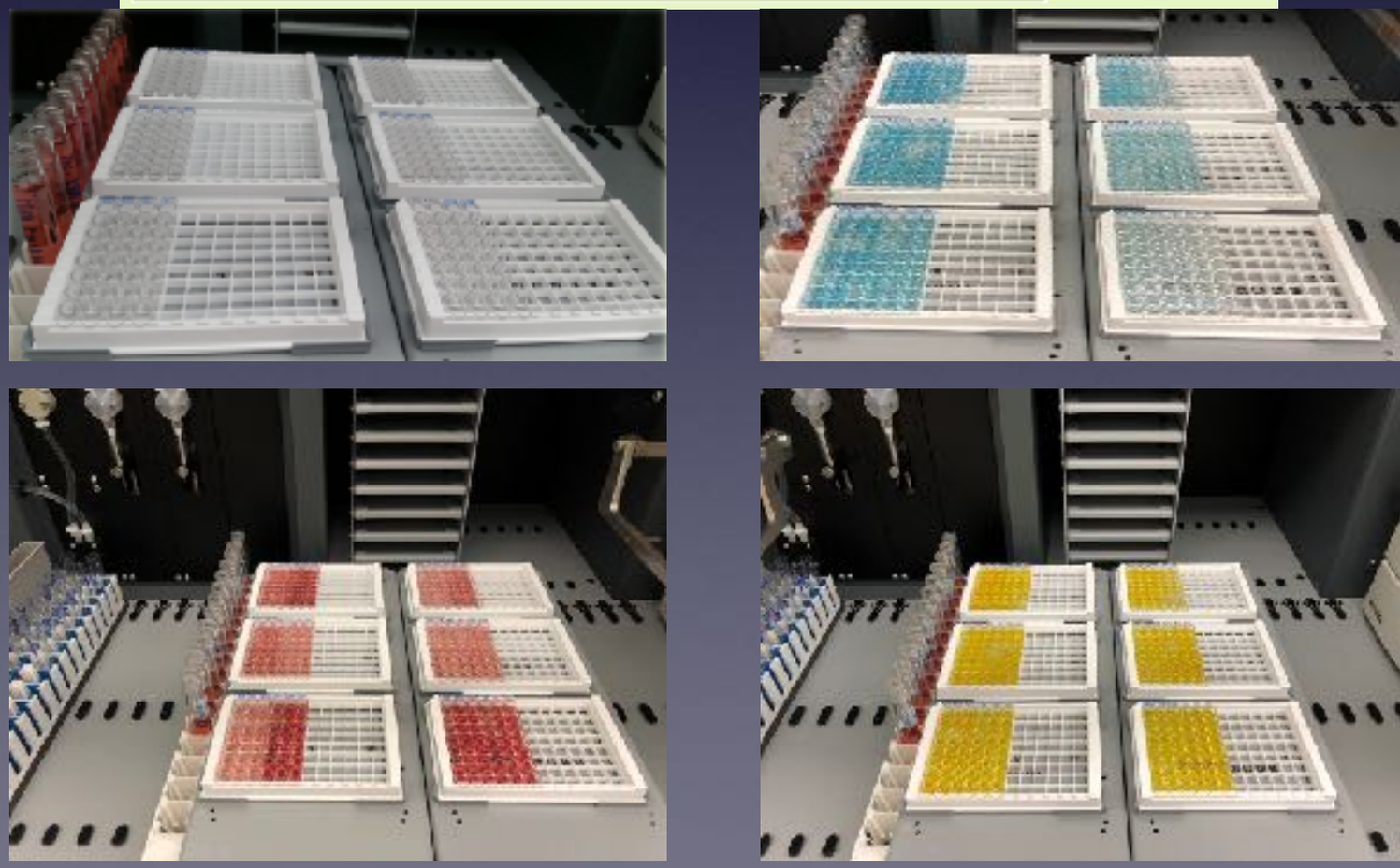
Immunoassay

Immunoassay

- Presumptive screening for the following drug/drug classes:
- Methamphetamines
- Benzodiazepines
- Barbiturates
- Cannabinoids
- Carisoprodol
- Cocaine
- Opiates
- Phencyclidine
- Zolpidem
- Methadone
- Tramadol
- Oxycodone
- Amphetamine
- Fentanyl

Screening Methods





Drug Screening

Immunoassay Drug Screening Report

	Barbiturates		Benzodiazepines		Cannabinoids		Carisoprodol		Cocaine/BE		Methamphetamine	
Control ID	Conc	% b/b0	Conc	% b/b0	Conc	% b/b0	Conc	% b/b0	Conc	% b/b0	Conc	% b/b0
PC	100ng/ml	51	50ng/ml	51	10ng/ml	65	500ng/ml	26	50ng/ml	37	20ng/ml	37
NC	Blank	100	Blank	100	Blank	100	Blank	100	Blank	100	Blank	100
HPC	200ng/ml	36	200ng/ml	23	50ng/ml	35	1000ng/ml	19	100ng/ml	29	50ng/ml	24
% B/B0	112		75		22		108		111		5	
Result	ND		ND		POSITIVE		ND		ND		POSITIVE	

	Opiates		PCP		Methadone		Oxyc/M		Tramadol		Zolpidem	
Control ID	Conc	% b/b0	Conc	% b/b0	Conc	% b/b0	Conc	% b/b0	Conc	% b/b0	Conc	% b/b0
PC	10ng/ml	53	5ng/ml	41	50ng/ml	54	10ng/ml	27	50ng/ml	62	10ng/ml	60
NC	Blank	100	Blank	100	Blank	100	Blank	100	Blank	100	Blank	100
HPC	50ng/ml	21	10ng/ml	29	100ng/ml	38	50ng/ml	9	100ng/ml	48	20ng/ml	45
% B/B0	95		108		131		109		109		110	
Result	ND		ND		ND		ND		ND		ND	

None Detected (ND)

Drug Screening

- **Values??**

20 **What does it mean to "normalize" my results?**

When "normalizing" results, cutoff concentrations for all assays are programmed on your instrument at a single value (either 0 or 100). All values below the cutoff are reported as negative, and all values above the cutoff are reported as positive.

21 **How are the numbers obtained from qualitative analysis interpreted?**

In qualitative analysis, the numerical values from the instrument do not represent the concentration of the drug in the control or specimen. These numbers should be used in a relative manner and not as absolute values.

Why confirm ?

- Is it really necessary to confirm drugs that tested positive by initial screening tests?

- FALSE POSITIVES

Cross reactivity

- Screening tests can and do react to “non-target” compounds
  - Phencyclidine (PCP)
  - Benzodiazepines
  - Bupropion
  - Niflumic acid
- Obtain list of interfering compounds from lab or on-site test vendor
- Confirm positive results

Confirmation

- Gas chromatography-mass spectrometry (GC/MS) or Liquid chromatography-mass spectrometry (LC/MS)
- drug molecules separated by physical characteristics (mass)
- identified based on chemical “finger-print”
- definitive

Drug Confirmation

- **Extraction**
- GC/MS and LC/MS
- Separation
- Identification
- Confirmation
- Various drugs classes

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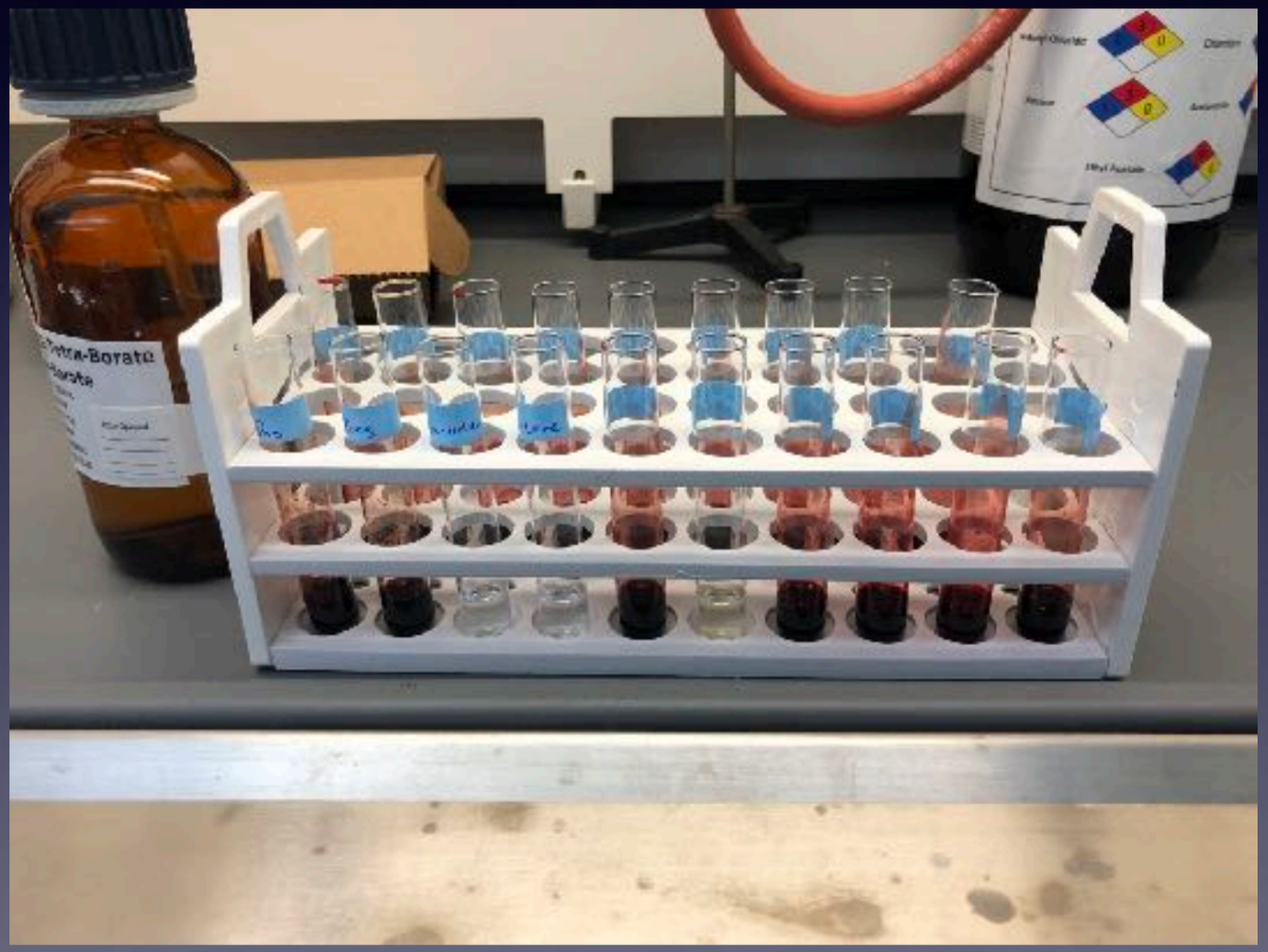

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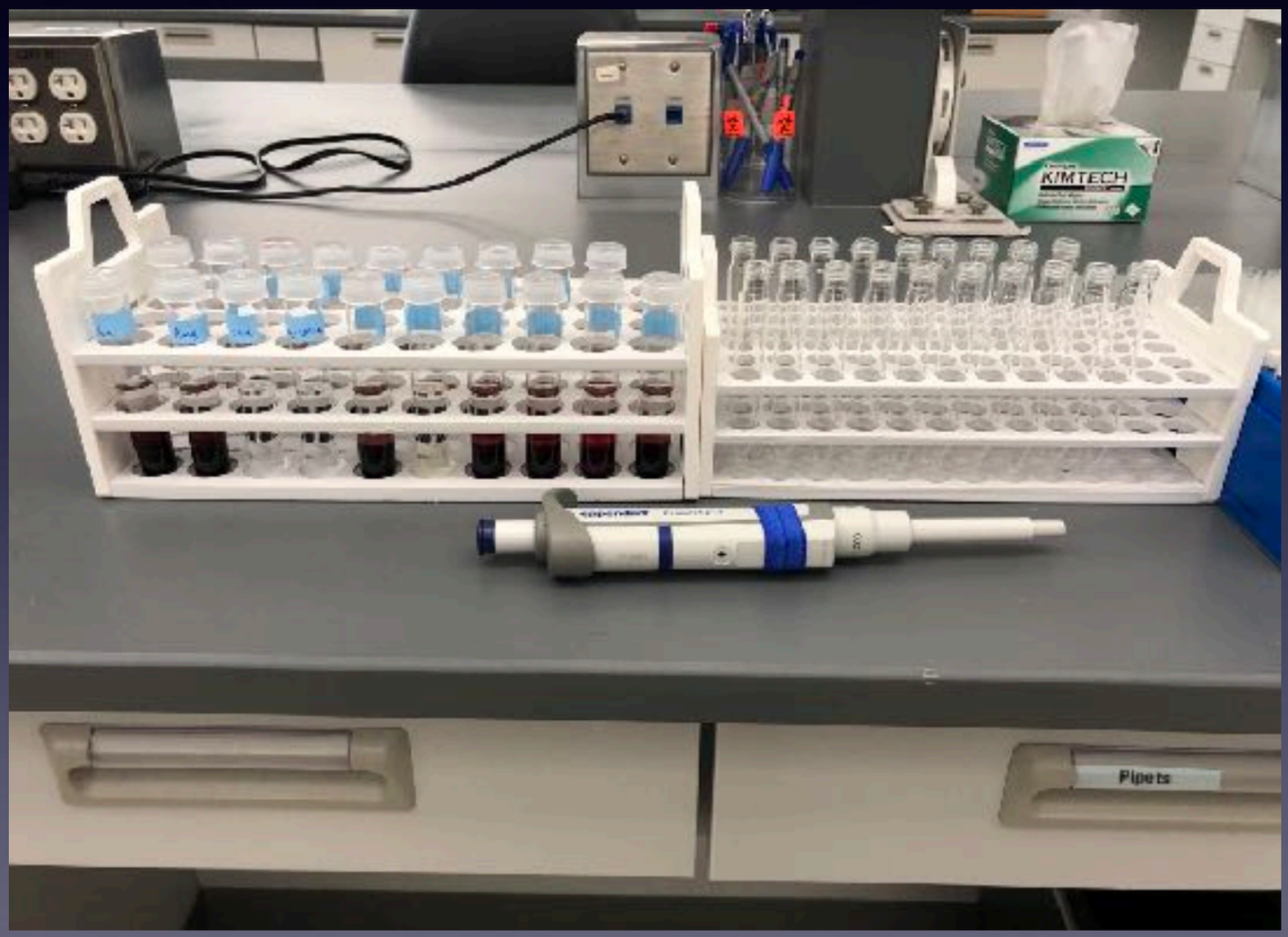

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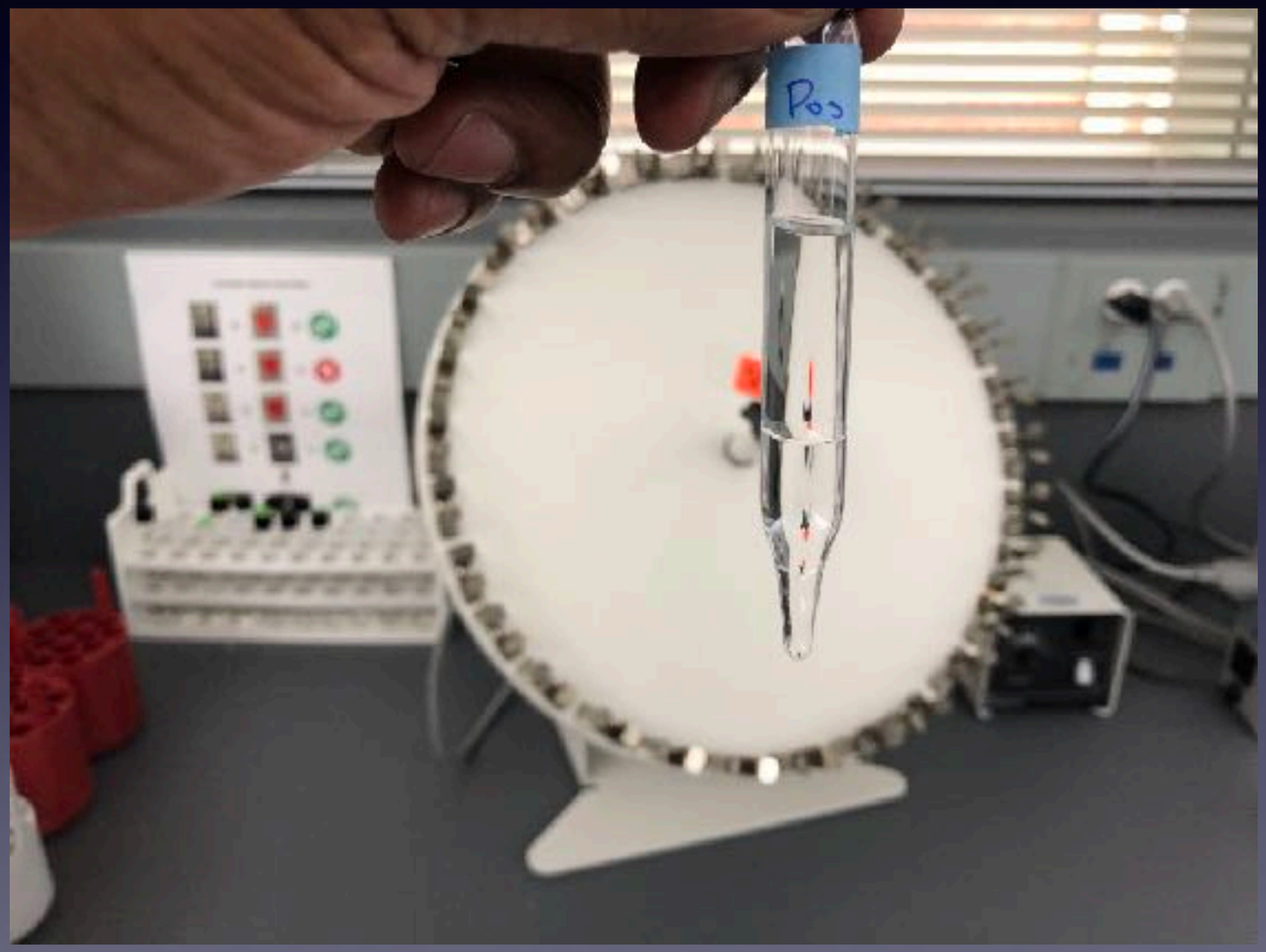

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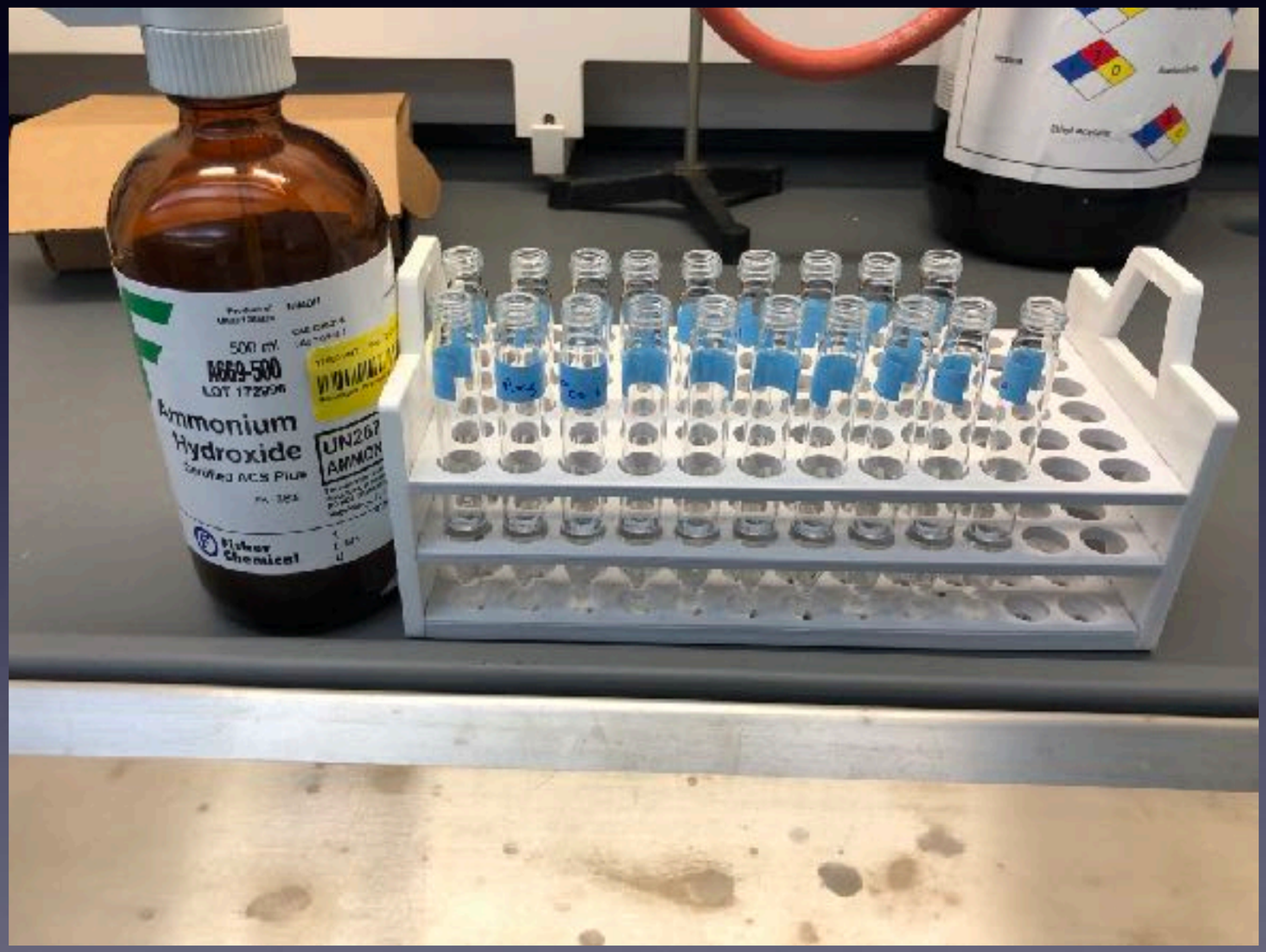

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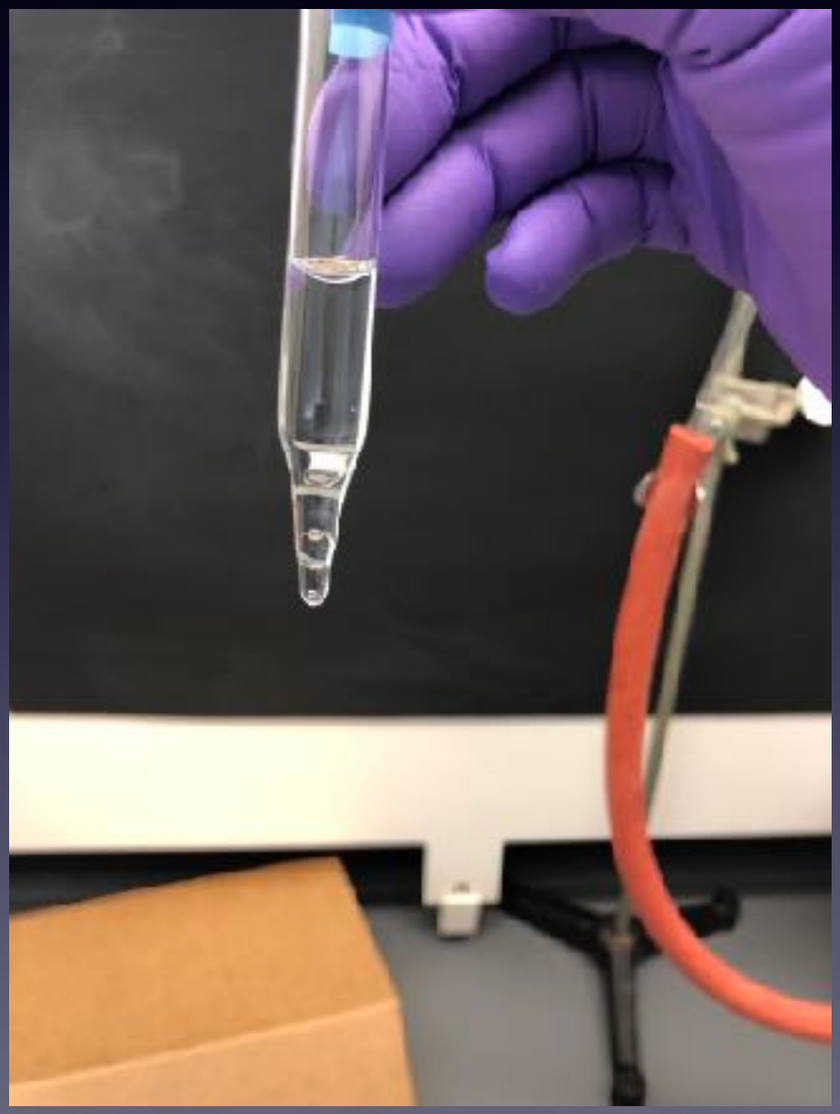
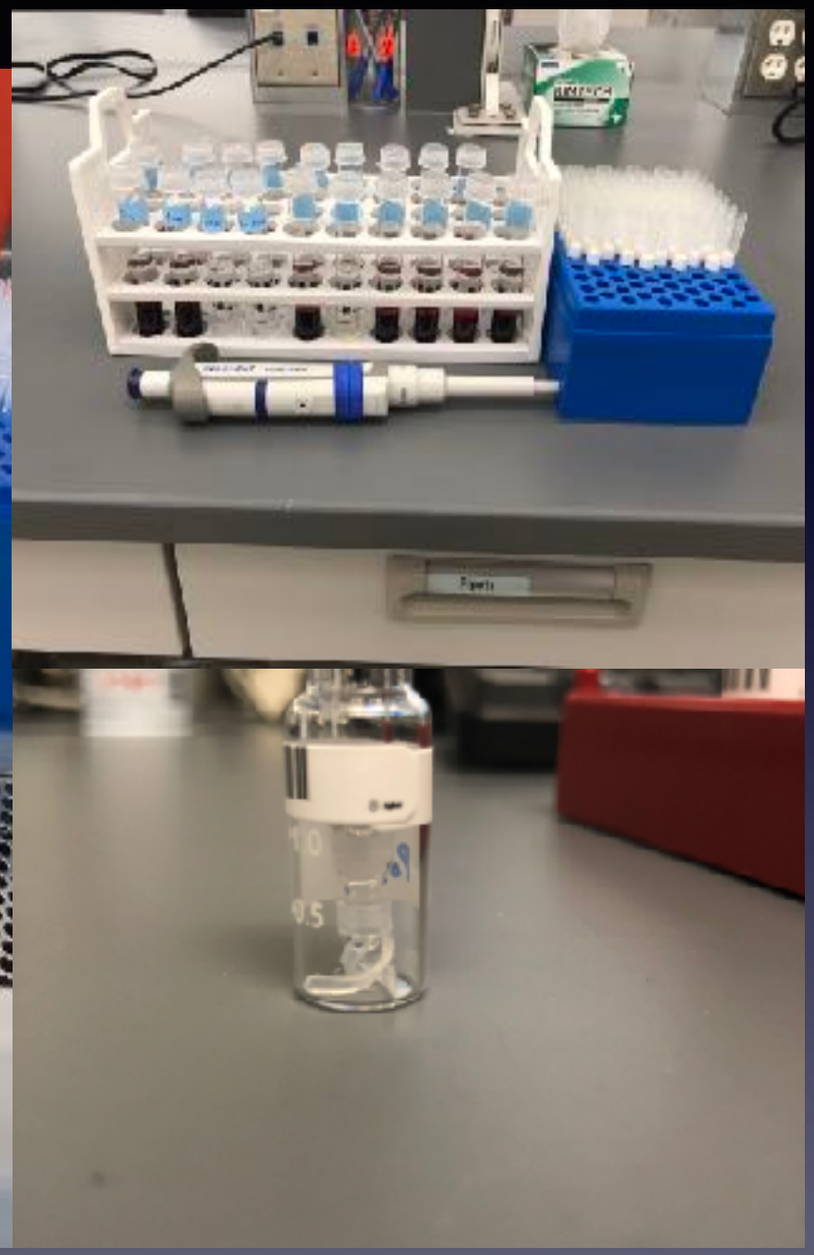
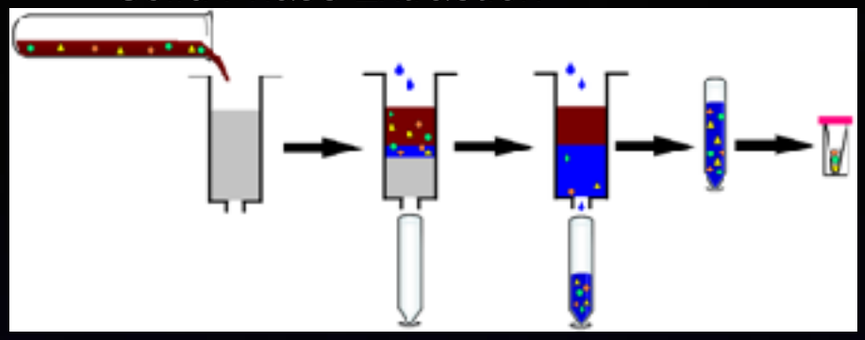


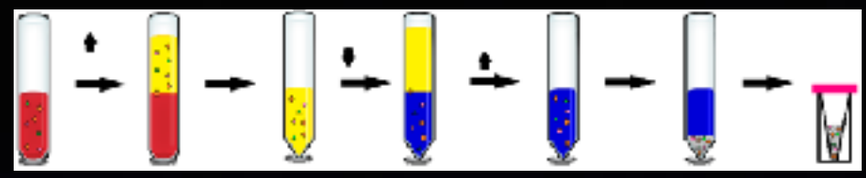


Confirmation Methods

Solid Phase Extraction

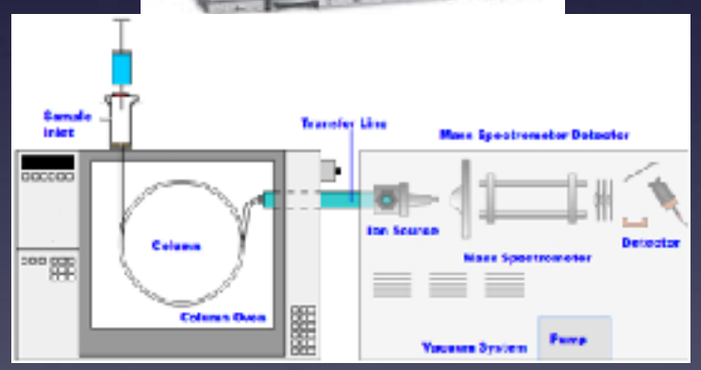


Liquid-Liquid Extraction



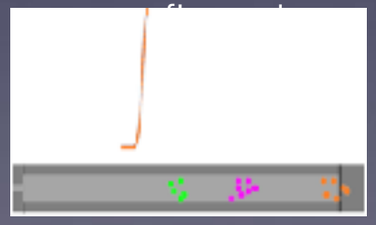
Step 2. Choose your instrument

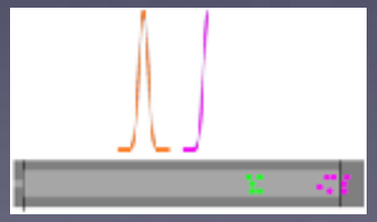
Gas Chromatography/Mass Spectrometry

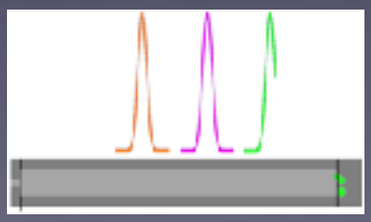


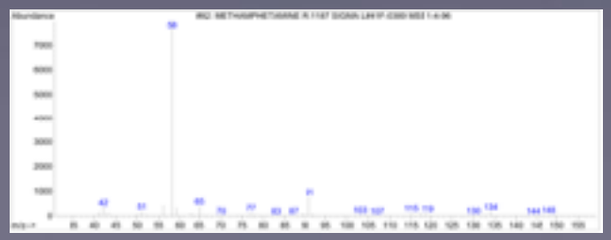
Liquid Chromatography Tandem Mass Spectrometry

Separation occurs and compounds are identified and









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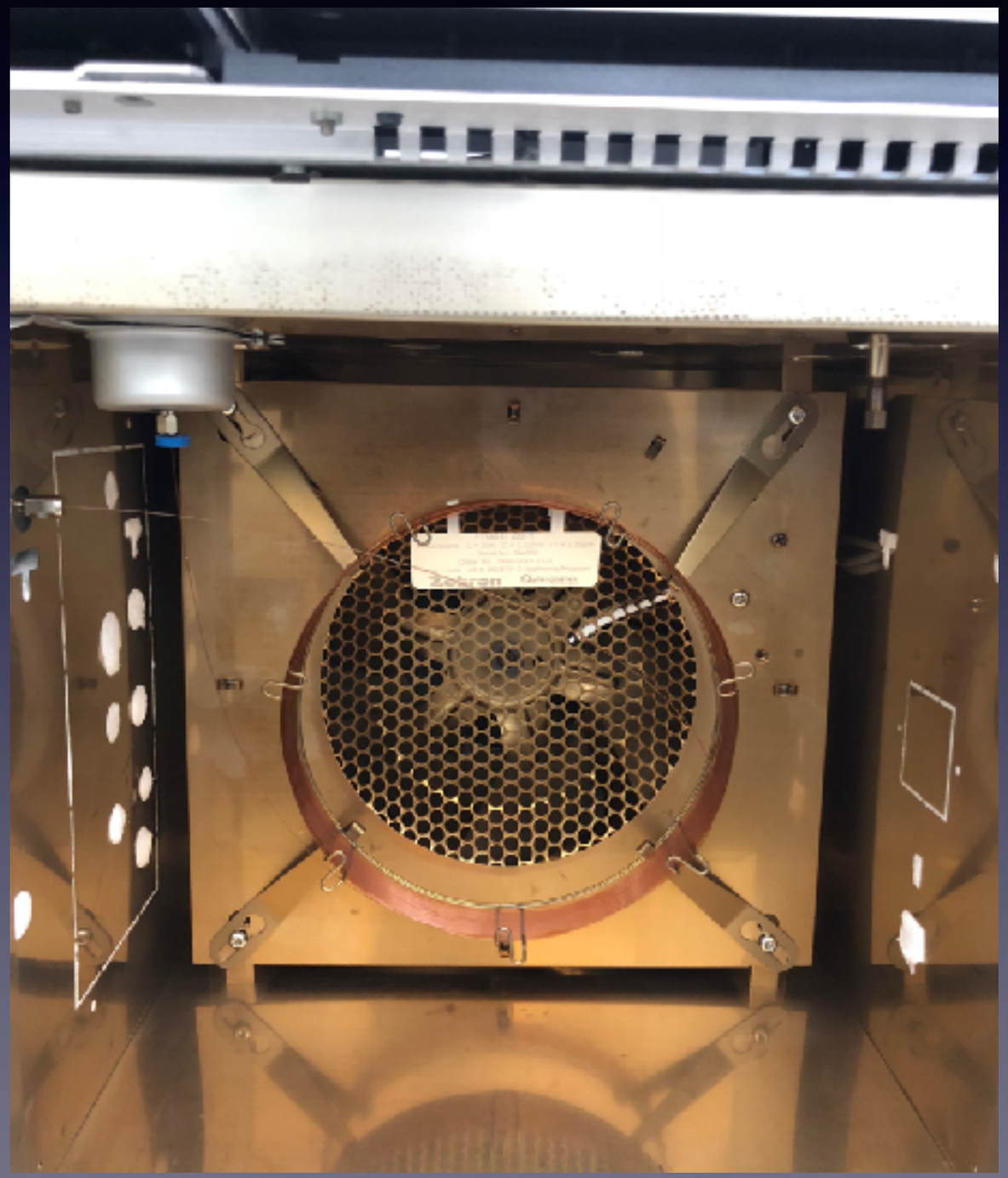

Drug Identification

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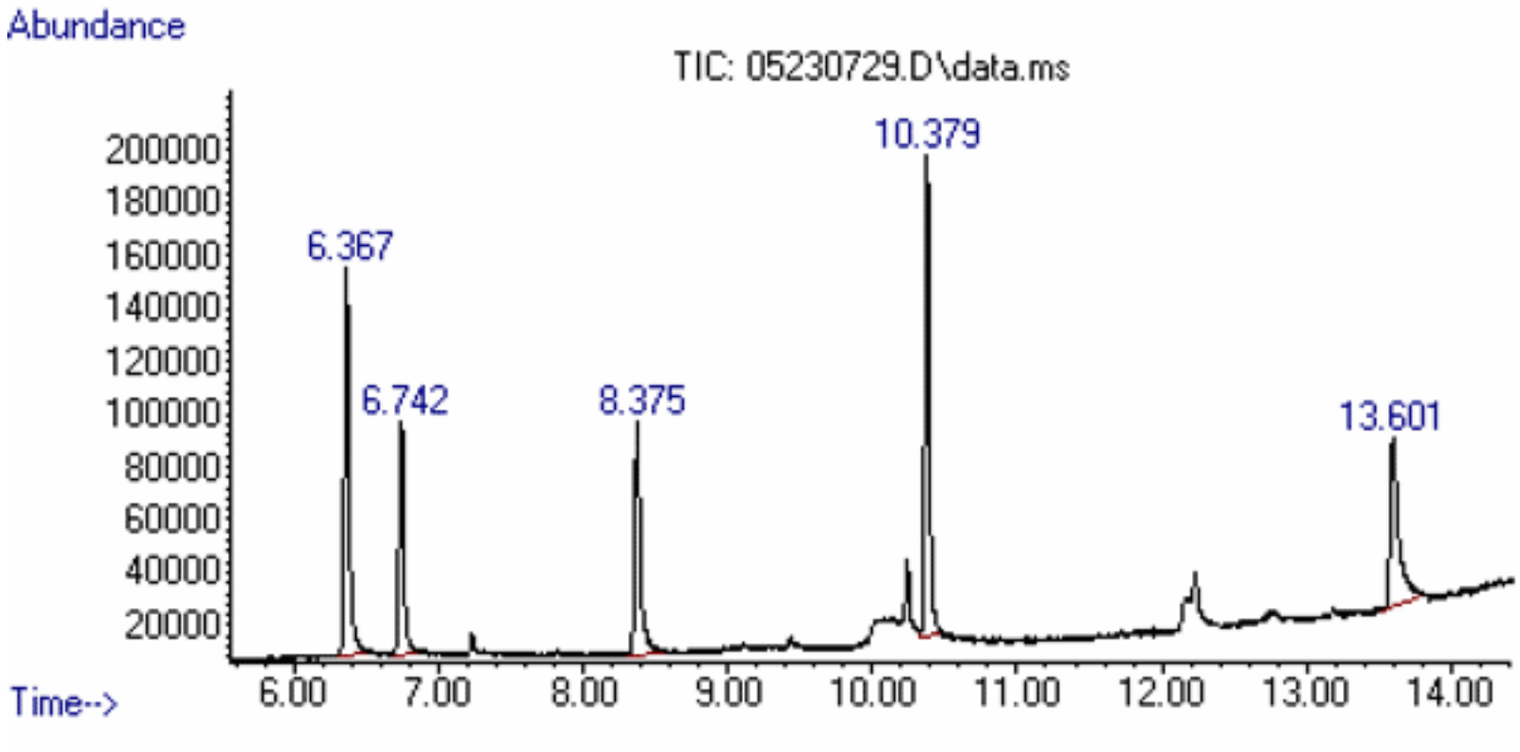
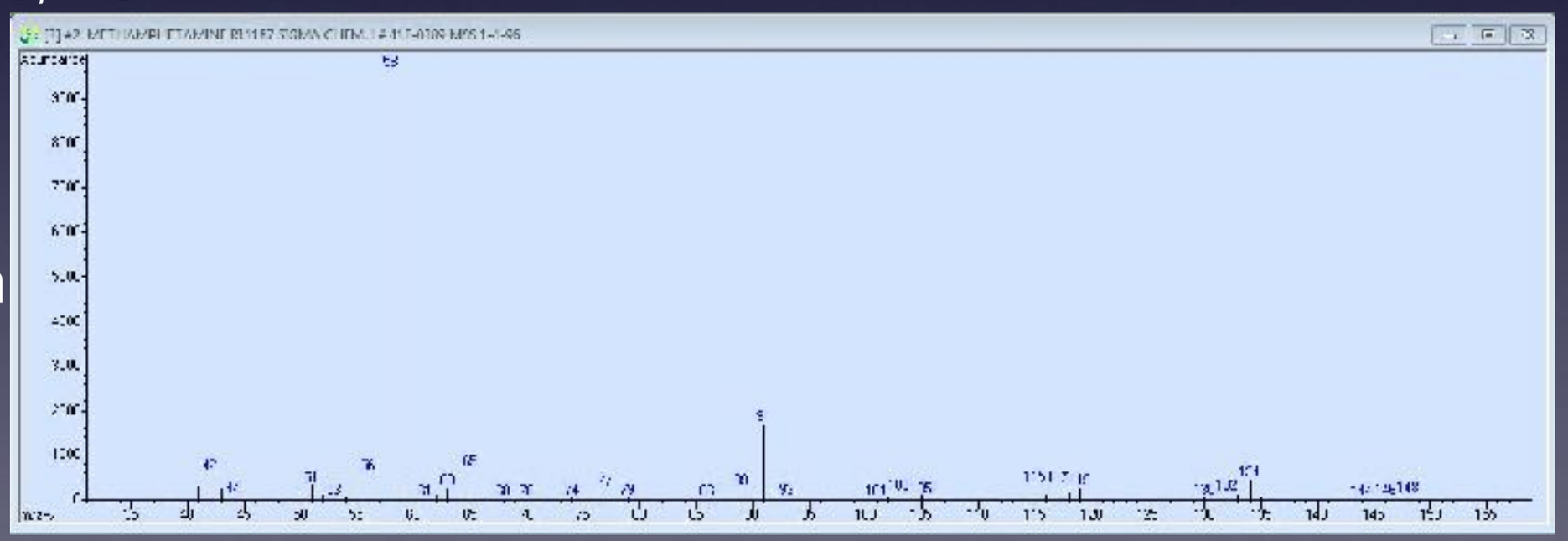
- Confirmation

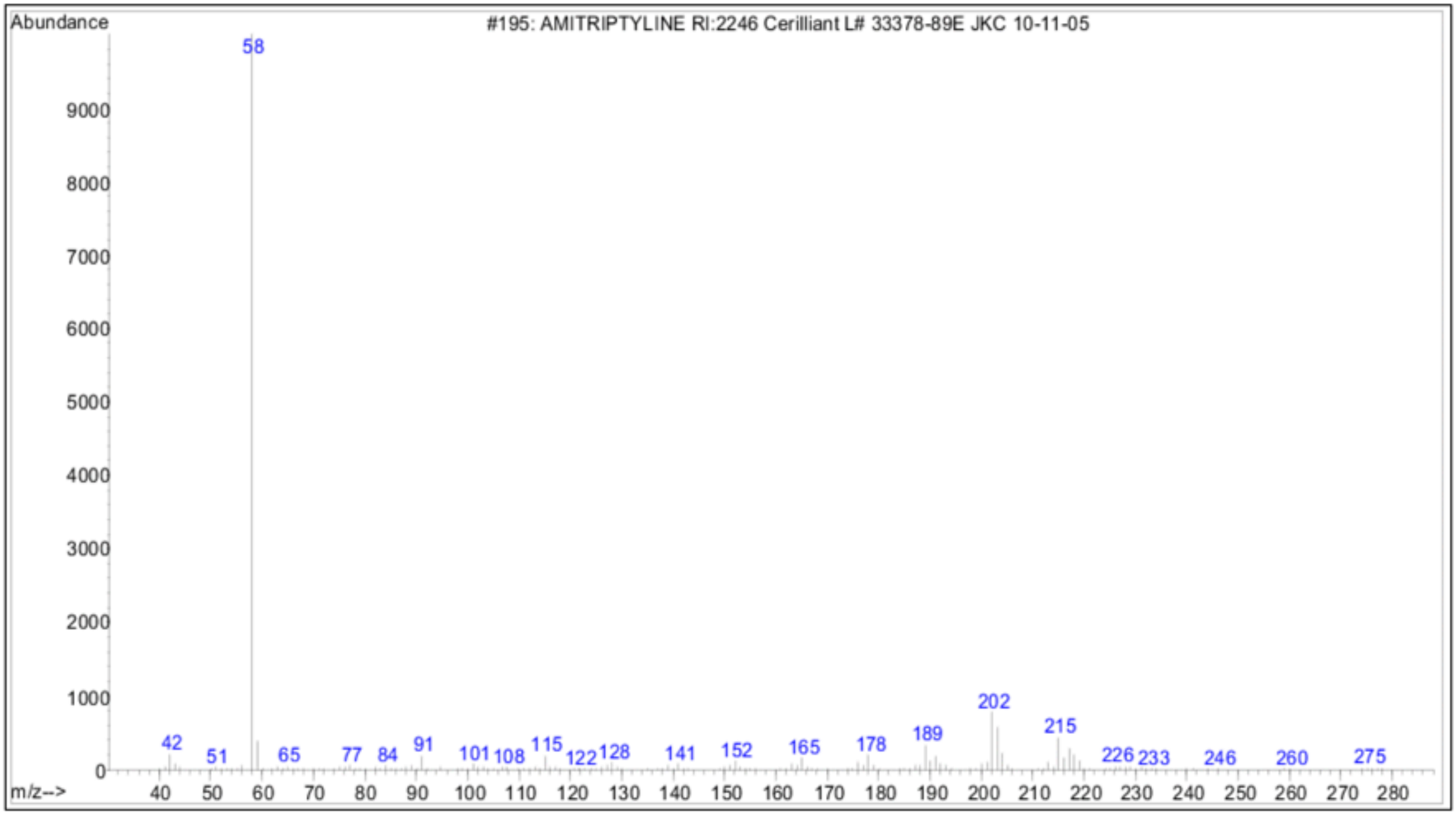


https://www.fda.gov/files/figure_1._total-ion_chromatogram_tic_abundance_vs._time._see_text_for_more_information.png

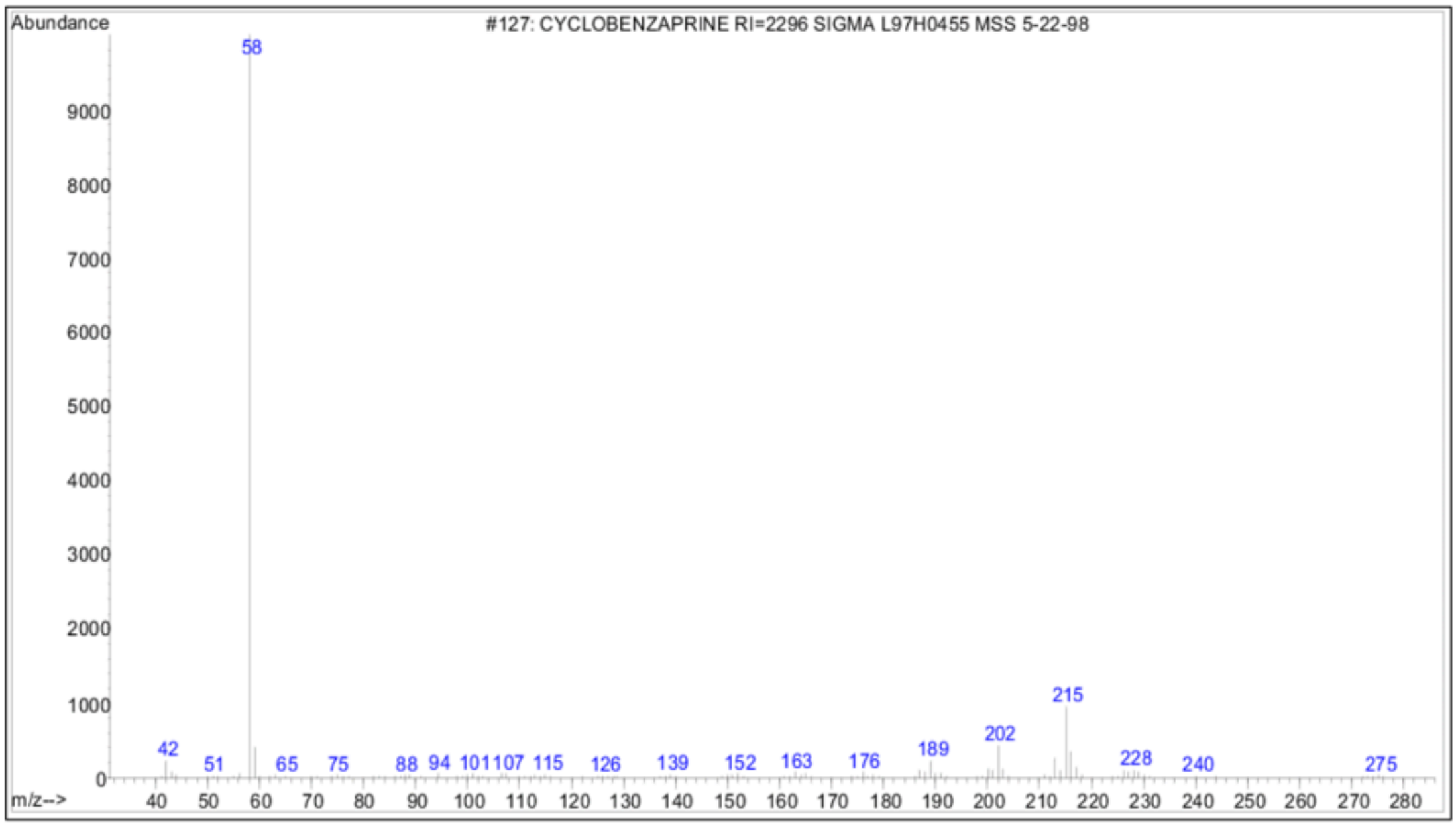
Drug Confirmation

- Extraction
- GC/MS and LC/MS
- Separation
- **Identification**
- Confirmation





Known #4: Amitriptyline



Known #5 Cyclobenzaprine

Drug Confirmation

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- Separation
- Identification
- **Confirmation**

Diazepam Metabolites

- Nordiazepam
- Temazepam
- Oxazepam

Chlordiazepoxide Metabolites

- Nordiazepam
- Oxazepam

Codeine Metabolites

- Morphine

Benefits of ETG/ETS Testing

- Accurate
- Greater sensitivity
- Concurrent with drugs

ETG/ETS Testing

- EtG is a direct metabolite of ethanol.
- In addition to EtG, recent scientific studies have identified ethyl sulfate (EtS) as a second specific metabolite or biomarker of ethanol.
- The detection of EtG and EtS offers greater sensitivity and accuracy for determination of recent ethanol ingestion, than by detection of either biomarker alone.

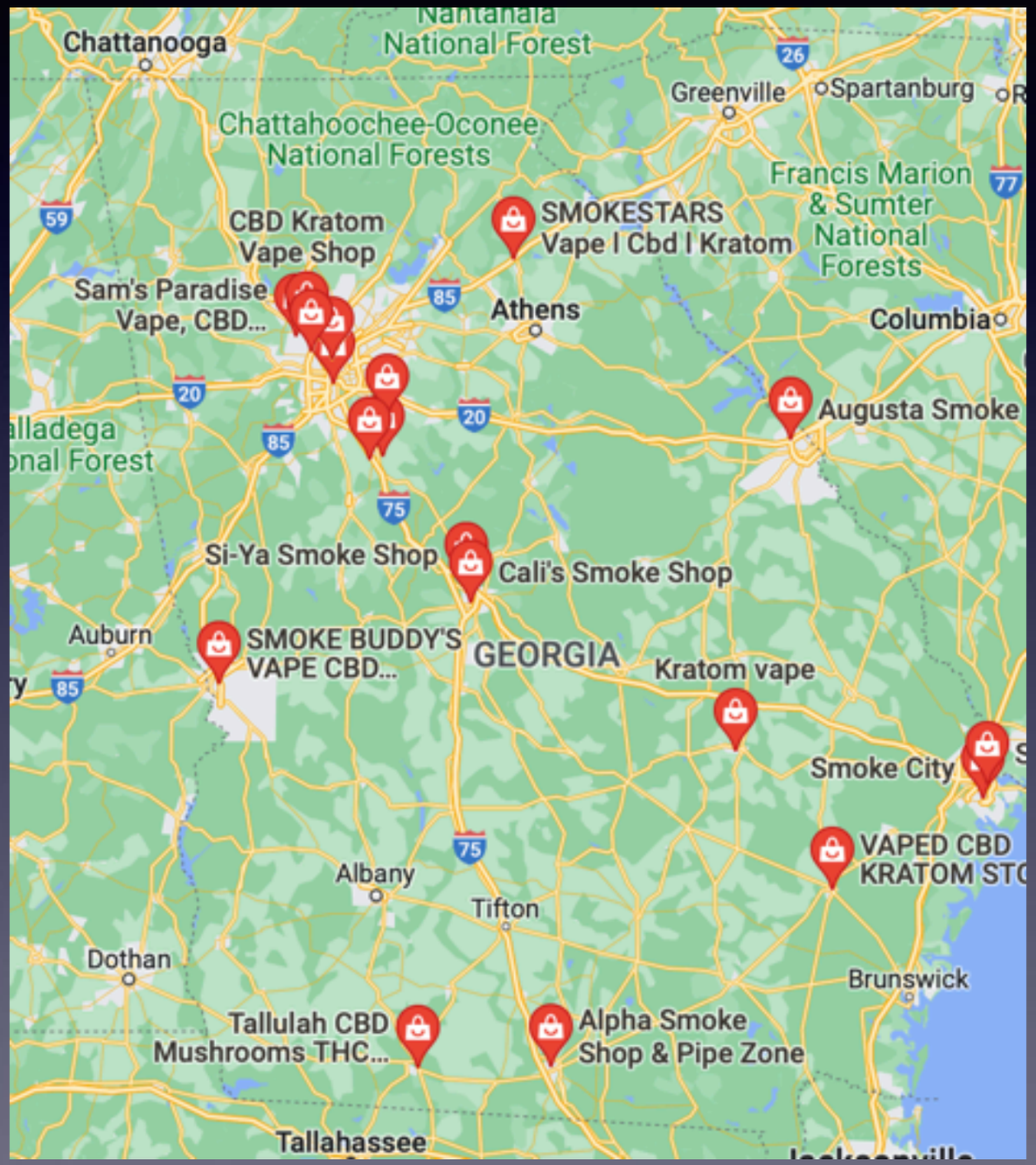
What about us?

- How are you determining your drug testing panel?
  - Self Report
  - Based on previous positive results
- Kratom (Crocodile, Khat, mirtragynine)
  - Hide opiate use
  - Not commonly in presumptive screening
- Ketamine (Horse Tranquilizers)
  - Veterinary use
  - Infusion clinics (PTSD, Suicidal, major depressive disorder)

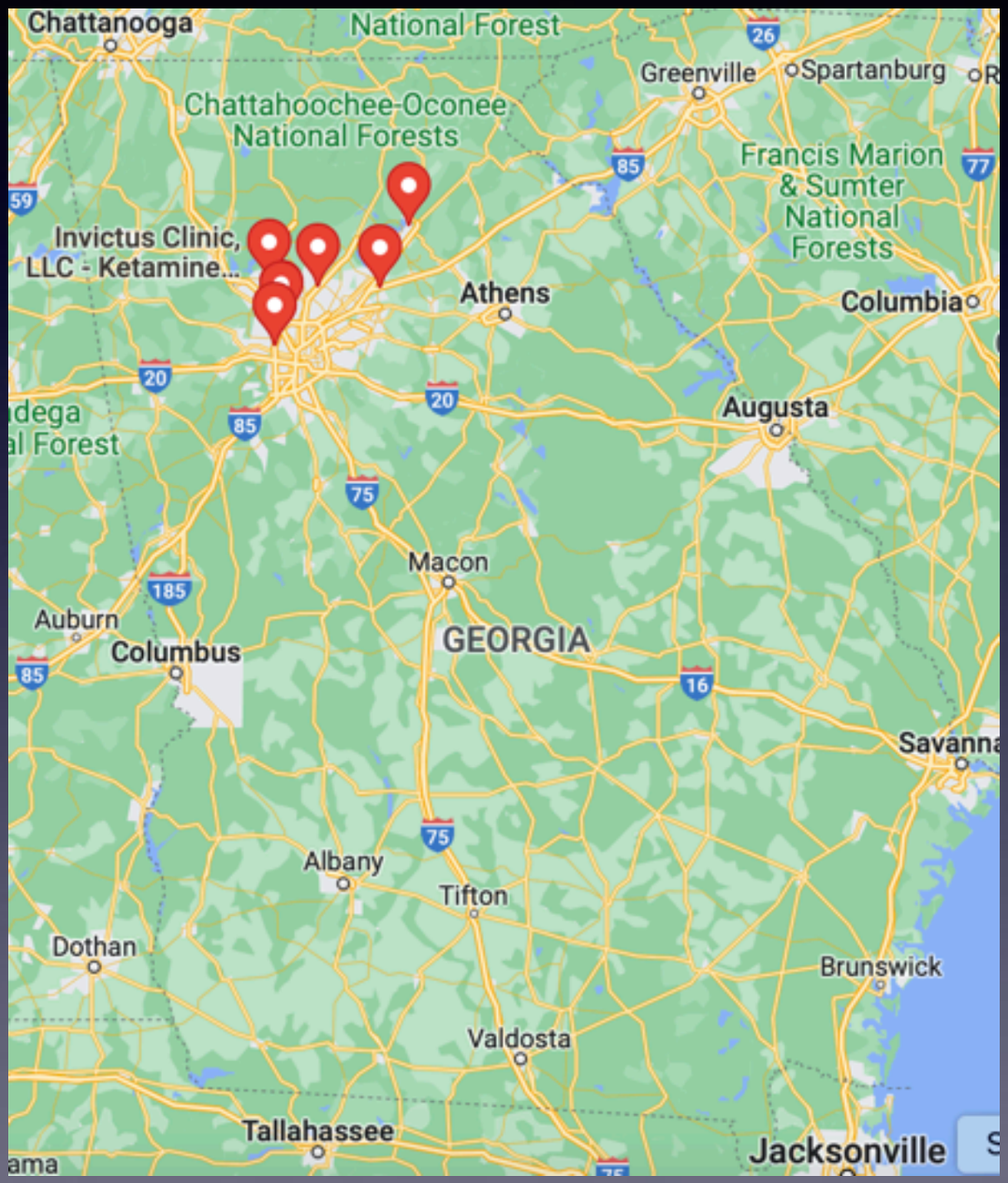
What about us? (Continued)

- Medetomidine
  - Originally used to treat barnacles
  - Approved in 2022 as a sedative for dogs
- Phenibut
  - Depressant used in Russia
  - Not commonly in presumptive screening
  - Has benzo like effects

Kratom


Chattanooga
Nantahala National Forest
Greenville
Spartanburg
Chattahoochee-Oconee National Forests
Francis Marion & Sumter National Forests
CBD Kratom Vape Shop
SMOKESTARS Vape I Cbd I Kratom
Sam's Paradise Vape, CBD...
Athens
Columbia
Augusta Smoke
Si-Ya Smoke Shop
Cali's Smoke Shop
Auburn
SMOKE BUDDY'S VAPE CBD...
GEORGIA
Kratom vape
Smoke City
VAPED CBD KRATOM STC
Albany
Tifton
Dothan
Brunswick
Tallulah CBD Mushrooms THC...
Alpha Smoke Shop & Pipe Zone
Tallahassee

Ketamine Infusions Clinics

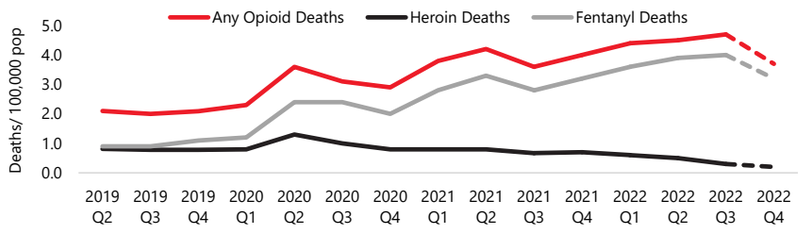


Overdose Deaths

Preliminary Quarterly Drug Overdose Surveillance Report Georgia, October - December 2022

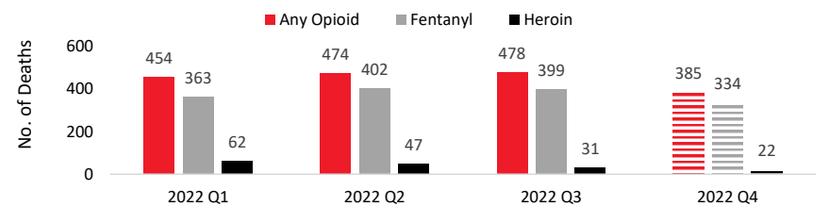
Fatal Drug Overdose (Mortality) Data Source: Overdose-involved deaths were derived from DPH Vital Records death certificates.
Nonfatal Drug Overdose (Morbidity) Data Source: Nonfatal overdose counts were derived from Georgia hospitalization and emergency department (ED) visit discharge data, and includes all ED visits or hospitalizations occurring in a non-Federal acute care hospital in Georgia, among Georgia residents, with a discharge diagnosis indicating acute drug overdose during 2018-2021. Deaths in the most recent quarter are likely undercounted due to reporting lags, numbers will increase in subsequent reports.
Case Definitions: Please look at our Opioid Overdose Surveillance Preliminary Report Georgia, 2021 for detailed case definitions. Q1: January-March, Q2: April-June, Q3: July-September, Q4: October-December.

Quarterly Drug-Involved Overdose Death Rates, by Drug Type, Georgia Residents, 2019-2022



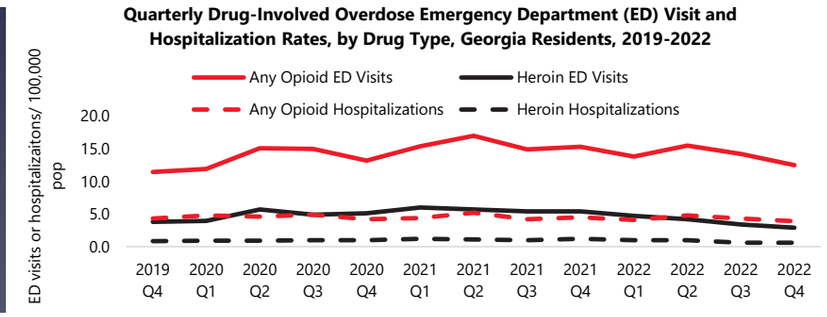
Deaths in the most recent quarter are likely undercounted due to reporting lags, numbers will increase in subsequent reports.

Quarterly Drug-Involved Overdose Deaths, by Drug Type, Georgia Residents, 2022 Q1-2022 Q4



Opioids include prescription opioid pain relievers (e.g., hydrocodone, oxycodone, and morphine), opioids used to treat addiction (e.g., methadone), as well as heroin, opium, and synthetic opioids (e.g., tramadol and fentanyl that may be prescription or illicitly-manufactured).

Quarterly Drug-Involved Overdose Emergency Department (ED) Visit and Hospitalization Rates, by Drug Type, Georgia Residents, 2019-2022



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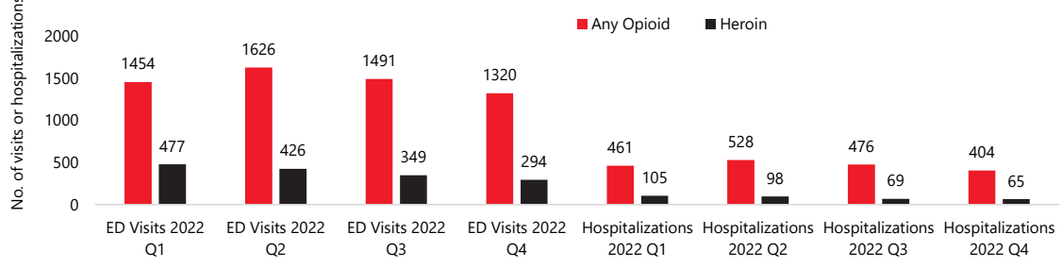


Nitazenes

- Subclass of opiates
- No legitimate medical use
- Ohio AG warning in April of 2022
- Multiple dose of naloxone
- US News Article

Image courtesy of dea.gov

Xylazine

- CNS depressant
- Used to sedate large animals
- FDA alert in November of 2022
- Naloxone may not work
- Usually found in combination with fentanyl

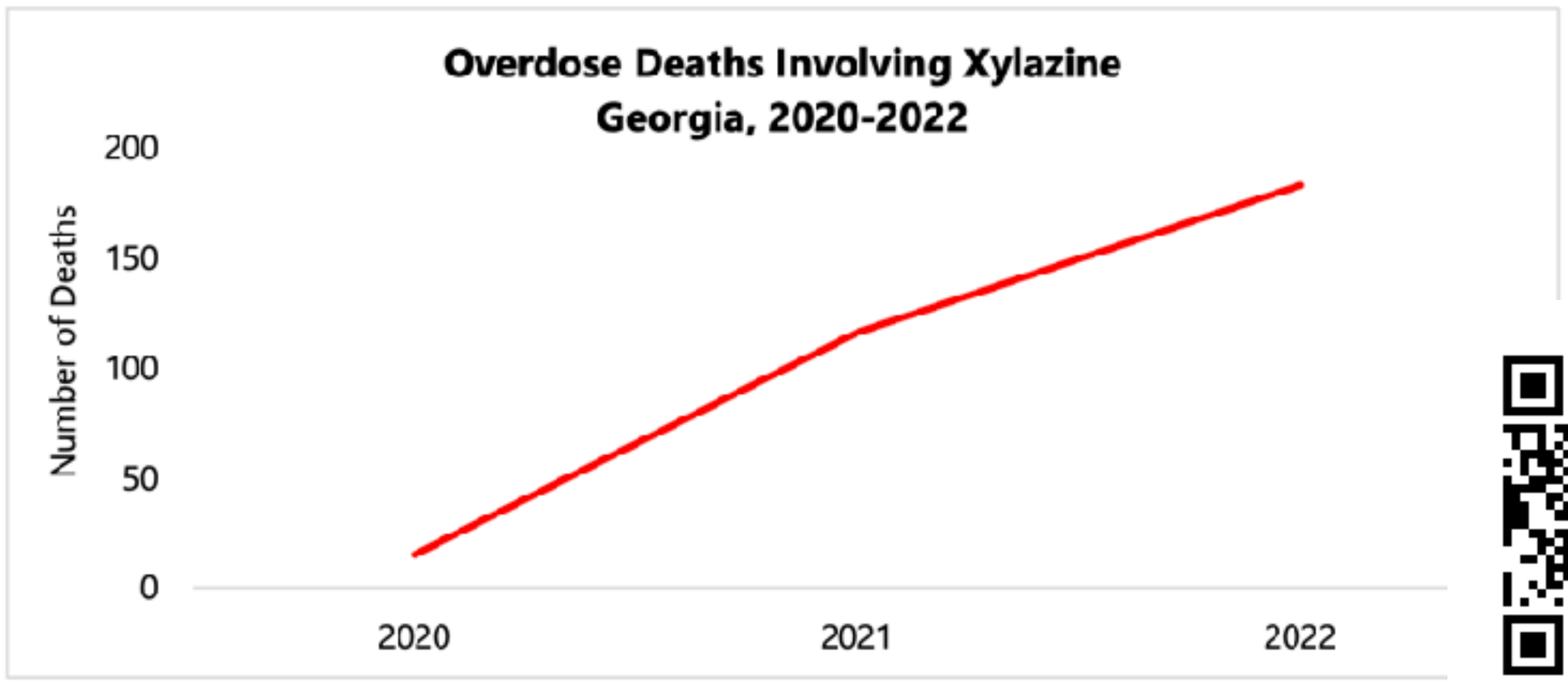
https://upload.wikimedia.org/wikipedia/commons/thumb/d/d2/Rompun.jpg/220px-Rompun.jpg

Xylazine

From 2020 to 2022 in Georgia:

- Deaths involving any drug increased 12%
- Deaths involving xylazine increased **1120%**
- The proportion of overdose deaths involving xylazine increased from 0.8% to **9%**

Drug Overdose Deaths by Drug Type, Georgia, 2020 – 2022							
	2020		2021		2022*		% Change
Drug Type	N	Rate	N	Rate	N	Rate	2020-2022
Any Drug	1888	17.63	2417	22.38	2115	19.58	12%
Xylazine	15	0.14	116	1.07	183	1.69	1120%



Delta 8 THC

- Naturally occurring in the hemp and THC
- Scheduled? 0.3%
- Wisconsin Legislative Council Brief July 2021
- Synthesized from CBD
- Separation issue

https://www.poison.org/-/media/images/shared/articles/delta-8-products-from-above.jpg?h=1134&w=1512&la=en&hash=0B2EE265B4D94F3B2BC71E19D948DB84

Brorphine

- Subclass of opiates
- No legitimate medical use
- First noted in 2018 (purple heroin)
- Schedule I as of 02-21

https://www.arkbh.com/wp-content/uploads/2022/04/385aa289-38f9-44da-b09d-966f5ce2d6c3_1140x641-1-768x432.jpeg

Isotonitazene

- Subclass of opiates
- Synthesized in 1959 by Swiss Pharmaceutical
- 20X more potent than morphine
- Reddit mention early 2019
- Suspected death April 2019

THC Diamonds

https://i.shgcdn.com/7d9e47ff-7f53-40c0-b4a5-fe8fd21c1ba0/-/format/auto/-/preview/3000x3000/-/quality/lighter/

Cannabidiol (CBD)

The Farm Bill removed all hemp-derived products, including CBD, from the Controlled Substances Act, which criminalizes the possession of drugs. In essence, this means that CBD is legal if it comes from hemp, but not if it comes from cannabis (marijuana) – even though it is the exact same molecule. Currently, many people obtain CBD online without a medical marijuana license, which is legal in most states.

Hemp versus Marijuana

What is the difference?

0.3% THC content

Alternative Specimens

- Sweat patch
- Oral Fluids
- Blood
- Breath
- Hair

Challenging Urine Collection Strategies

Sample Collection

Pre-collection Preparation:

- Privacy
- Prepare Ahead

Sample Collection

- Wash Hands
- Witness
- Chain of Custody (label)

Sample Collection

- Accept sample and inspect
- Temperature, color, odor
- Labeled and proper storage
- Proper chain of custody

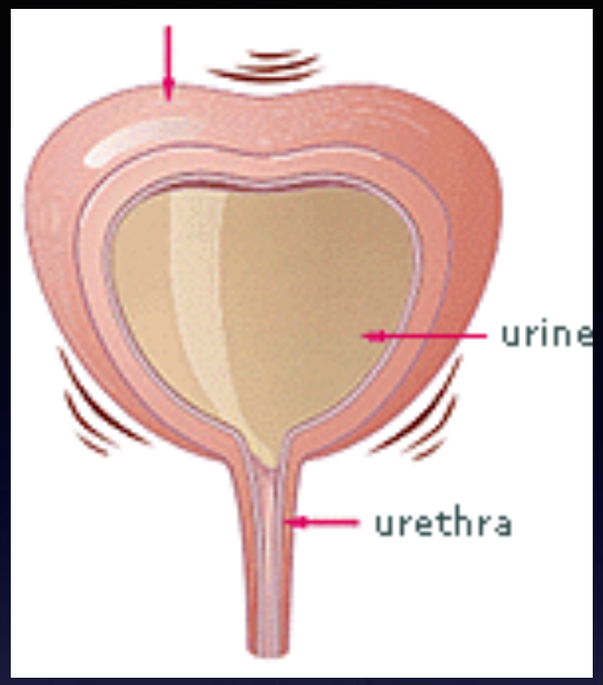
- Developing control strategies to prevent sample tampering is critical.
- Once clients understand that they cannot beat the system, they are more likely to engage in the therapeutic process towards recovery.

Valid Specimens

The Effective Use of Urine Creatinine Measurements in Abstinence Monitoring

- EVERY urine sample collected for drug detection should be tested for creatinine

DILUTION GOAL



Client has a bladder full of urine with a drug concentration that is greater than the cutoff level of the test - thus producing a positive result.

Urine in the bladder is diluted by the consumption of large amounts of non-drug containing fluid; which results in a drug concentration that is less than the cutoff level of the test - thus producing a negative result.

Water contains no drugs!

- easiest, cheapest, simplest
- urine with a creatinine of less than 20 mg/dL are considered “dilute” and rarely reflect an accurate picture of recent drug use
- dilute samples are more like water than like urine
- incidence of low creatinine in a population undergoing random drug testing is significantly (up to 10 times) greater than a non-drug tested population

The “Normal” Urine Creatinine

- normal urine creatinine: 2005 study “Urinary Creatinine Concentrations in the U.S. Population” determine the mean (based upon 22,245 participants) was 130 mg/dL

- study was not associated with drug testing

- subjects came from a variety of ethnic groups

- samples were collected AM, mid-day, and PM

- less than 1% below 20 mg/dL

- less than 1% greater than 400 mg/dL

Volume 40, Issue 8
October 2016

Article Contents

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Urine Creatinine Concentrations in Drug Monitoring Participants and Hospitalized Patients

Sara A. Love ✉, Jesse C. Seegmiller, Julie Kloss, Fred S. Apple

Journal of Analytical Toxicology, Volume 40, Issue 8, October 2016, Pages 659–662,
https://doi.org/10.1093/jat/bkw092
Published: 20 September 2016 **Article history** ▾

Abstract

Urine drug testing is commonly performed in both clinical and forensic arenas for screening, monitoring and compliance purposes. We sought to determine if urine creatinine concentrations in monitoring program participants were significantly different from hospital in-patients and out-patients undergoing urine drug testing. We retrospectively reviewed urine creatinine submitted in June through December 2015 for all specimens undergoing urine drug testing. The 20,479 creatinine results were categorized as hospitalized patients (H) and monitoring/compliance groups for pain management (P), legal (L) or recovery (R). Median creatinine concentrations (interquartile range, mg/dL) were significantly different ($P < 0.001$) between groups: H 126 (122–136); P 138 (137–143); L 147 (144–154); R 95 (92–97). In the two groups subject to on-demand sampling time pressures, median creatinine concentrations were significantly lower in the R vs. L group ($P<0.001$). In conclusion, recovery (R) participants have more dilute specimens, reflected by significantly lower creatinine concentration and may indicate participants' attempts to tamper with their drug test results through dilution means.

Sara A. Love, Jesse C. Seegmiller, Julie Kloss, Fred S. Apple, Urine Creatinine Concentrations in Drug Monitoring Participants and Hospitalized Patients, *Journal of Analytical Toxicology*, Volume 40, Issue 8, October 2016, Pages 659–662, https://doi.org/10.1093/jat/bkw092

More Creatinine Issues

- rapid ingestion (90 minutes) of 2-4 quarts of fluid will almost always produce low creatinine & negative urine drug tests within one hour

- recovery time of urine creatinine and drug concentrations can take up to 10 hours

More Creatinine Issues

Identifying New Cannabis Use with Urine Creatinine-Normalized THCCOOH Concentrations and Time Intervals Between Specimen Collections*

Michael L. Smith,[1] Allan J. Barnes,[2] and Marilyn A. Huestis[2,†]

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Abstract

Go to:

A previously recommended a method for detecting new cannabis use with creatinine-normalized 11-nor-9-carboxy-Δ^9-tetrahydrocannabinol (THCCOOH) urine concentrations in periodically collected specimens for treatment, workplace and judicial drug testing applications is refined by considering the time interval between urine collections. All urine specimens were collected from six less-than-daily cannabis users who smoked placebo, 1.75%, and 3.55% THC cigarettes in randomized order, each separated by one week. Ratios (n = 24,322) were calculated by dividing each creatinine-normalized THCCOOH concentration (U2) by that of a previously collected specimen (U1). Maximum, 95% limit, and median U2/U1 ratios with 15 and 6 ng THCCOOH/mL cutoff concentrations, with and without new use between specimens, were calculated for each 24-h interval after smoking up to 168 h and are included in tables. These ratios decreased with increasing interval between collections providing improved decision values for determining new cannabis use. For example, with a 15 ng THCCOOH/mL cutoff concentration and no new use between specimens, the maximum, 95% limit, and median U2/U1 ratios were 3.05, 1.59, and 0.686, respectively, when the collection interval was ≤ 24 h and 0.215, 0.135, and 0.085 when it was 96–119.9 h.

Smith ML, Barnes AJ, Huestis MA. Identifying new cannabis use with urine creatinine-normalized THCCOOH concentrations and time intervals between specimen collections. J Anal Toxicol. 2009 May;33(4):185-9. doi: 10.1093/jat/33.4.185. PMID: 19470219; PMCID: PMC3159564.

More Creatinine Issues

Introduction

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There are a number of venues wherein urine drug testing identifies new cannabis use. Examples are drug treatment and parole programs in which individuals are required to be abstinent and are monitored by periodic urine drug testing. Officials detect new use by testing urine specimens collected at known intervals for the Δ^9-tetrahydrocannabinol (THC) metabolite, 11-nor-9-carboxy-Δ^9-tetrahydrocannabinol (THCCOOH). A similar approach is taken in legal settings where authorities may ask if an accused with two positive urine specimens can be charged with more than one cannabis use.

Interpretation of results in monitoring or evidence scenarios is not simple. Part of the complexity is that individuals continue to excrete THCCOOH for days after abstinence and although concentrations generally decrease with time concentrations fluctuate with levels of hydration. Huestis and Cone (1) conducted a controlled THC administration study in occasional users and made recommendations to aid interpretation. They recommended that THCCOOH concentrations be normalized by dividing each by the urine creatinine concentration (1). This technique reduces the variability in concentration due to hydration effects. Using these creatinine-normalized THCCOOH concentrations, a ratio is calculated that is the concentration of any urine specimen (U2) divided by the concentration in a previously collected urine specimen (U1). With the restrictions of THCCOOH ≥ 15 ng/mL, separation in collection time ≥ 24 h, and evaluation of less than daily cannabis users, new use is indicated by U2/U1 ≥ 0.5. This decision ratio gave maximum accuracy (85.4%) in their study with 5.6% false-positive and 7.4% false-negative rates (1). The ratio seemed well suited for clinical programs where new cannabis use did not involve serious consequences, such as incarceration or loss of child custody. When the consequence of a false-positive result was great, the authors recommended a more conservative decision ratio, previously suggested by Manno et al. (2), of 1.5. Using 1.5 as a decision ratio reduced the false-positive rate to 0.1% and increased the false negative rate to 24% (1).

Smith ML, Barnes AJ, Huestis MA. Identifying new cannabis use with urine creatinine-normalized THCCOOH concentrations and time intervals between specimen collections. J Anal Toxicol. 2009 May;33(4):185-9. doi: 10.1093/jat/33.4.185. PMID: 19470219; PMCID: PMC3159564.

More Creatinine Issues

Methods

Go to:

Subjects, experimental design, urine testing methods, and human use approval were reported previously (8). The original urine cannabinoid and creatinine data were reanalyzed to include intervals between specimens for this study (8). Briefly, in a National Institute on Drug Abuse Institutional Review Board-approved study, six healthy male subjects who smoked cannabis less than daily provided informed consent and resided on a closed research unit. After a washout period that was at least one week, subjects smoked a single cannabis cigarette (placebo, 1.75%, or 3.55% THC) once a week for three consecutive weeks. Random selection yielded the following administration sequences for two subjects each: placebo, 1.75% THC, 3.55% THC; 1.75% THC, 3.55% THC, placebo; and 3.55% THC, placebo, 1.75% THC. Every individual urine specimen was collected throughout the three-week study. Specimens ($n = 955$) were stored frozen at −20°C until analyzed for THCCOOH by gas chromatography–mass spectrometry (GC–MS). The GC–MS method included base hydrolysis, ion exchange extraction, and methylation for derivatization. The limit of quantification was 0.5 ng/mL. Urine creatinine was quantified using a modified Jaffe method on an Hitachi 704 automated clinical analyzer (8).

Creatinine-normalized THCCOOH concentrations were determined by dividing the THCCOOH concentration in nanograms per milliliter by the creatinine concentration in milligrams per deciliter, then multiplying by 100 in order to report results in nanograms THCCOOH per milligram of creatinine. For each subject, U2/U1 ratios were calculated by dividing the normalized THCCOOH concentration for each urine specimen by the normalized THCCOOH concentration of each previous specimen. Data were analyzed to address new cannabis use with two methods.

Smith ML, Barnes AJ, Huestis MA. Identifying new cannabis use with urine creatinine-normalized THCCOOH concentrations and time intervals between specimen collections. J Anal Toxicol. 2009 May;33(4):185-9. doi: 10.1093/jat/33.4.185. PMID: 19470219; PMCID: PMC3159564.

“Dilute” Result Interpretation:

- negative or none detected results should never be interpreted as indicating no drug use (abstinence), because if, in fact, drugs were present, they probably could not be detected by the test
- positive drug test results from a dilute sample however, are considered valid (donor was not able to dilute the sample sufficiently to deceive the test)

Two final thoughts about dilute urine samples . . . . .

- a creatinine of less than 20 mg/dL (associated with a drug test) is nearly always an attempt by the donor to avoid drug use detection - REGARDLESS of how much liquid was consumed in order to achieve this result

- place a dilute sample prohibition in your client contract and sanction for repeat dilute samples

Paint Roadmap for Success

- Upon entering the Drug Court, participants receive a clear and comprehensive explanation of their rights and responsibilities related to drug and alcohol testing

- Outcomes are significantly better when Drug Courts specify their policies and procedures clearly

- Participants significantly more likely to react favorably to an adverse judgment if they are given advance notice about how such judgments are made

Specimen Tampering

Basics of Specimen Tampering - The Three Approaches

- dilution
- adulteration
- substitution

Urine Specimen Adulteration

- addition of foreign substances designed to “mask” drug presence
- post-collection tampering
- low-tech adulterants that disrupt testing chemistry (salt, methanol, detergent)
- “high-tech” adulterants

Urine Specimen Substitution

- replacing donor urine sample with another drug-free specimen
- biological substitution - someone else's "clean" urine
- non-biological substitution - replacing urine with urine "look-a-like" sample (diet Mountain Dew, water with food coloring)
- non-biologicals can be detected with creatinine testing

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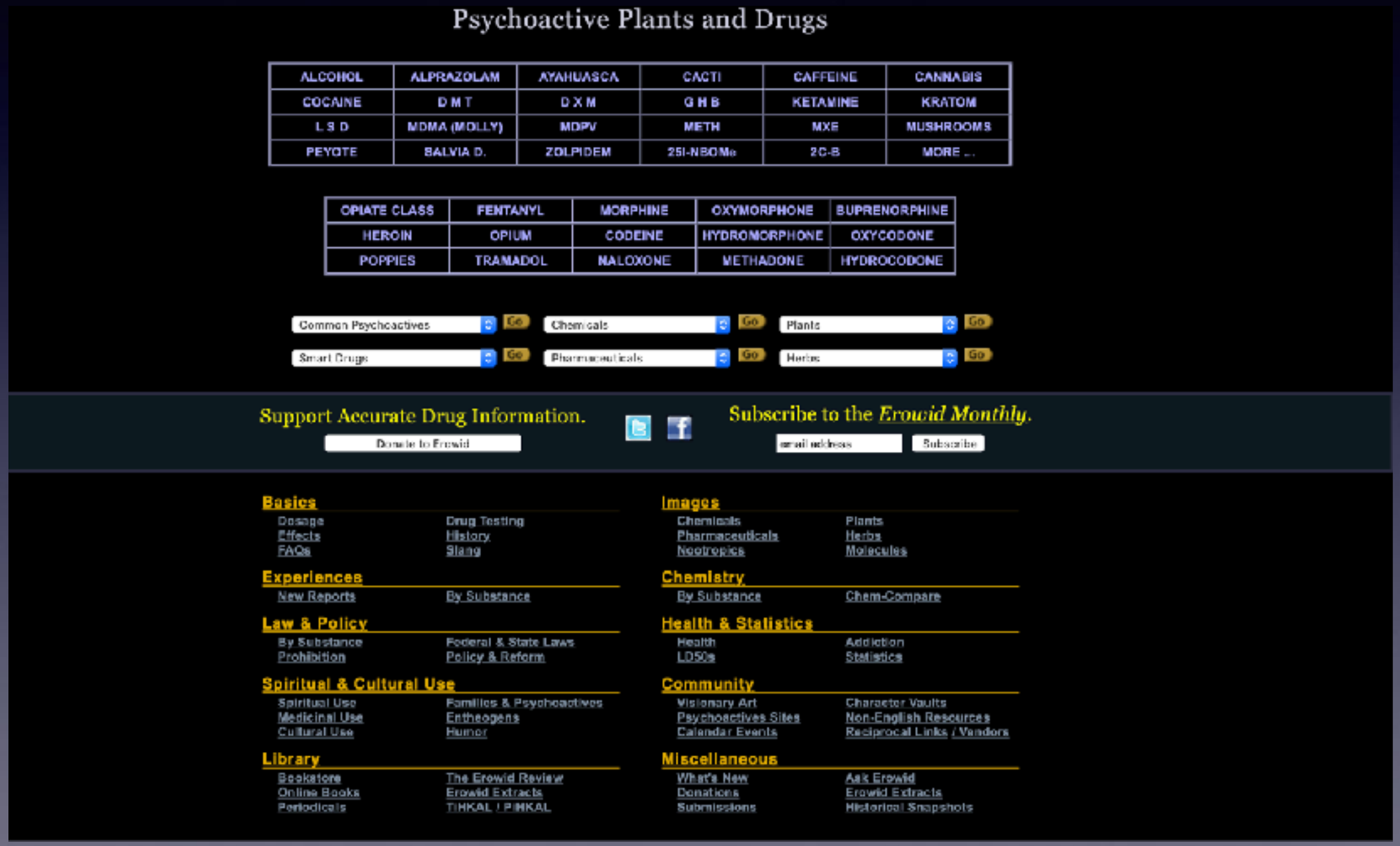
Psychoactive Plants and Drugs
ALCOHOL
ALPRAZOLAM
AYAHUASCA
CACTI
CAFFEINE
CANNABIS
COCAINE
D M T
D X M
G H B
KETAMINE
KRATOM
L S D
MDMA (MOLLY)
MDPV
METH
MXE
MUSHROOMS
PEYOTE
SALVIA D.
ZOLPIDEM
25I-NBOMe
2C-B
MORE ...
OPIATE CLASS
FENTANYL
MORPHINE
OXYMORPHONE
BUPRENORPHINE
HEROIN
OPIUM
CODEINE
HYDROMORPHONE
OXYCODONE
POPPIES
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Spiritual Use
Medicinal Use
Cultural Use
Families & Psychoactives
Entheogens
Humor
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Erowid Extracts
TIHKAL / PIHKAL
Images
Chemicals
Pharmaceuticals
Neotropics
Plants
Herbs
Molecules
Chemistry
By Substance
Chem-Compare
Health & Statistics
Health
LD50s
Addiction
Statistics
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Erowid Experiences Vault

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Opioid Crisis Leads FDA To Restrict Imodium

FROM THE WEBMD ARCHIVES

By EJ Mundell

HealthDay Reporter

TUESDAY, Jan. 30, 2018 (HealthDay News) -- Increasingly, people addicted to opioid painkillers are using dangerously high doses of the diarrhea drug Imodium (loperamide), either to get high or to help ease withdrawal.

So, on Tuesday the U.S. Food and Drug Administration said it's putting new restrictions on the packaging of the medication, dubbed by some as "the poor man's methadone."

"When higher than recommended doses are taken we've received reports of serious heart problems and deaths with loperamide, particularly among people who are intentionally misusing or abusing high doses," FDA commissioner Dr. Scott Gottlieb said in an agency news release.

https://www.madison-health.com/healthdayarticle.php?id=10936

Erowid.com

9.2 Where to get clean urine.

9.2.1 Urine from a donor: You can substitute someone else's urine. Ask your urine donor (hopefully a friend you can trust) what drugs they've taken in the last month. They may have taken a false positive (or a true positive for that matter). Before the test, the examiner will likely ask you to list everything you've taken. If the urine ages beyond 18 hours, deterioration becomes noticable and the lab may suspect something.

9.2.2 Powdered urine: If you don't trust your friend's sample, or don't have any clean friends, you can get powdered urine from Martha Butterfield-Jay Foundation. It's produced by Byrd Labs, and supposedly works perfectly; however, I got MBJF's powdered urine, and it did not specify the age or gender of the original sample. Powdered urine must be prepared ahead of time. If there is a period of time that you are clean, you can make powdered urine from your own supply.

9.2.2.1 Making your own powdered urine: Urinate in a glass container. Let it evaporate. Then scrape the inside for the concentrate. Just mix it with water before the test, and the sample will have the correct specific gravity, pH, color, etc.

9.2.3 Dog urine: I heard from Dr. Grow that dog urine (of all things) can be substituted, and will pass the test! However, I don't know how an age, gender, pH, or creatinine test would result. Someone was able to use dog urine for several months to pass the test. This subsection assumes you have a clean dog. I know my dog's urine wouldn't pass; he eats more weed than humans do. It would make more sense to use human urine, but dog urine provides a workable substitution in an emergency.

10. STEALING URINE

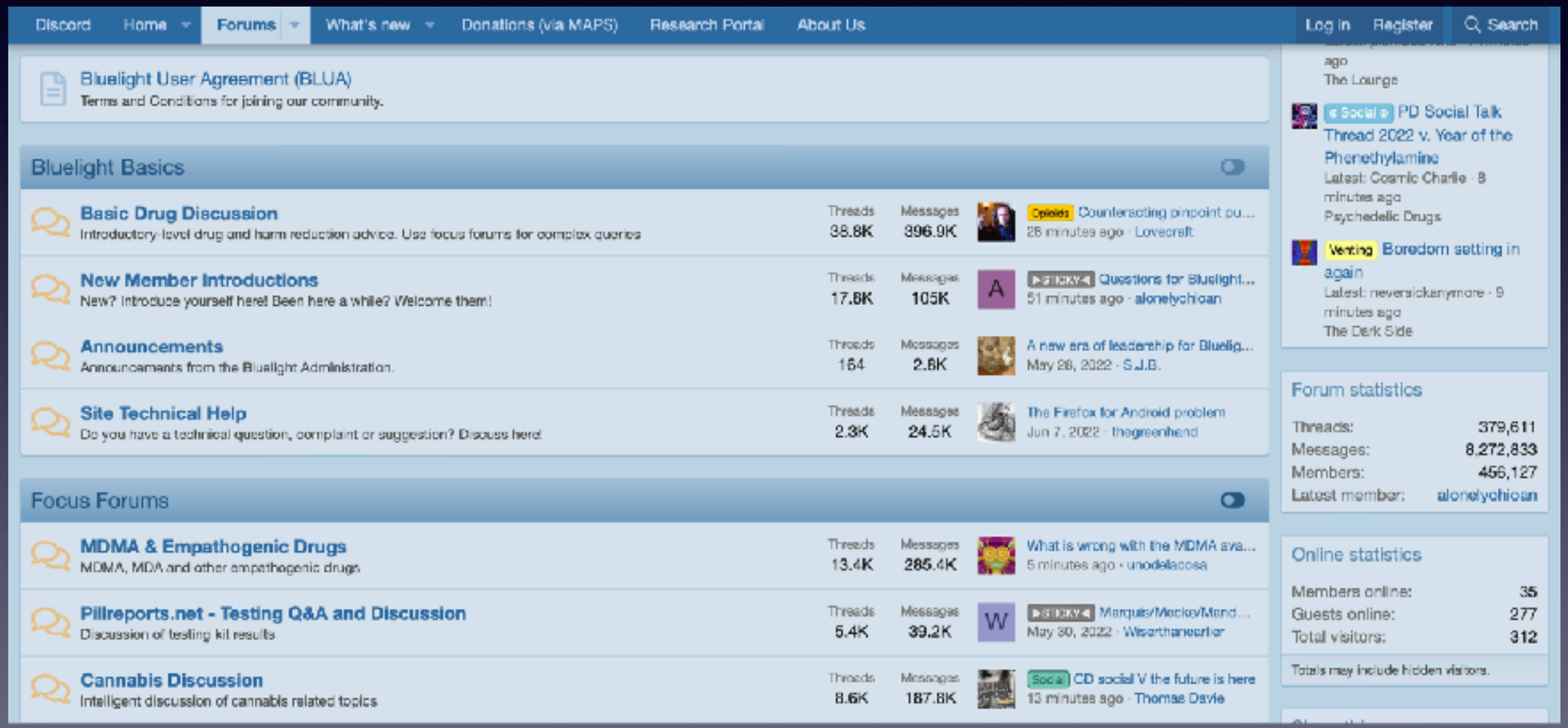
Speaking of stealing, people have been known to get away with stealing their sample from the tray among many other urine samples. In the case that I heard, the person being tested never got the test results, and was hired for the job that he was tested for. They wouldn't dare ask someone to re-test because they "lost" his/her urine sample. Don't expect this method to work if you are being tested for the military or if you're on parole; they have no problem violating your rights repeatedly.

11. IF YOU FAIL

If you fail the test, raise hell. Failing the drug test has been known to make a quiet person go ballistic. You will be interviewed by a medical review official (MRO), who would try to find out why you tested positive. MRO's are NOT impartial. An MRO is an employee of the lab, and is there for quality control. They are also there to protect the lab by coercing the court into thinking that the person who failed is a drug abus you say to an MRO can and will be used against you" (RDW). If you fight it, your lawyer "can subpoena the proficiency testing records of the laboratory for review" (anon1).

Screenshot

Bluelight.org



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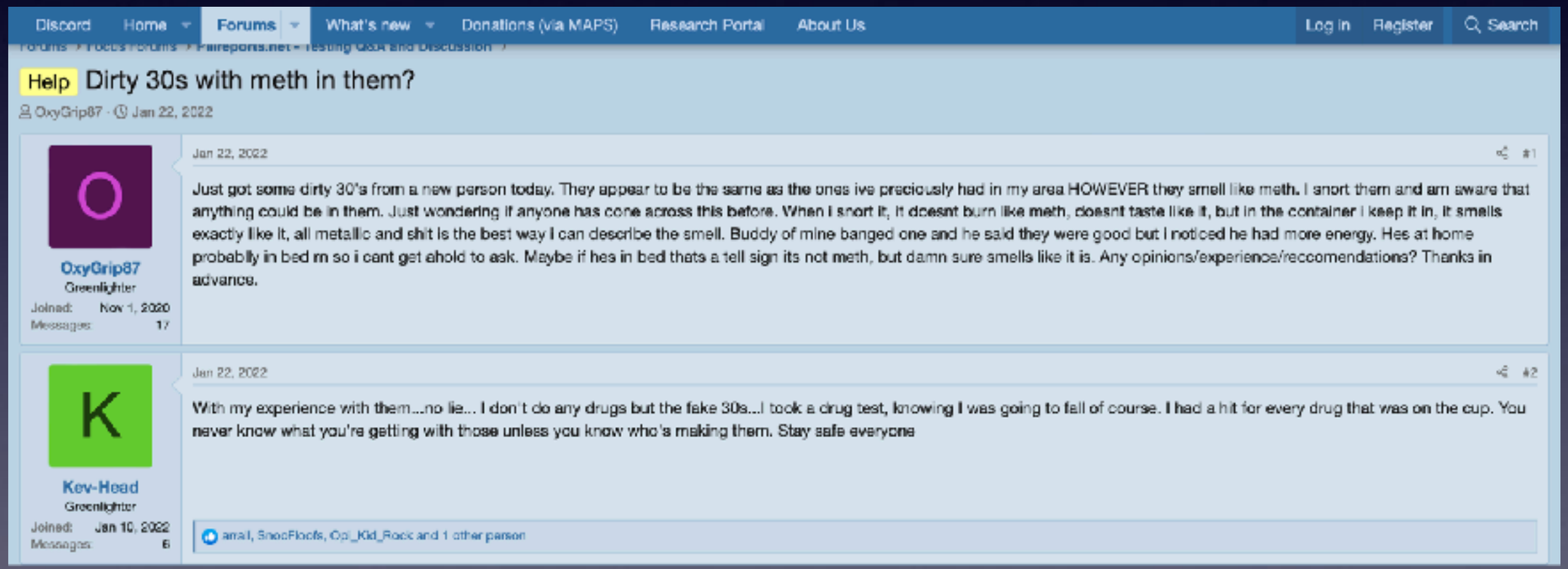

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> Quick Luck Premium Pre-mixed Synthetic Urine

Quick Luck Premium Pre-mixed Synthetic Urine

The Clear Choice® was launched in 1993, 2 years later this brand still thrives as being the best of its class. Quick Luck is a NEW premium quality, 3 oz synthetic urine kit with the most superior formula on the market, based on more than 27 years of research and lab testing.

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Our TOP secret urine formula is made from 11 different chemical compounds including uric acid and urea that mimic real human urine and is balanced for pH, specific gravity and creatinine just to mention a few.

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This is the only pre-mixed, synthetic urine of its kind and it rivals any other product out there on the market.

- 100% effective
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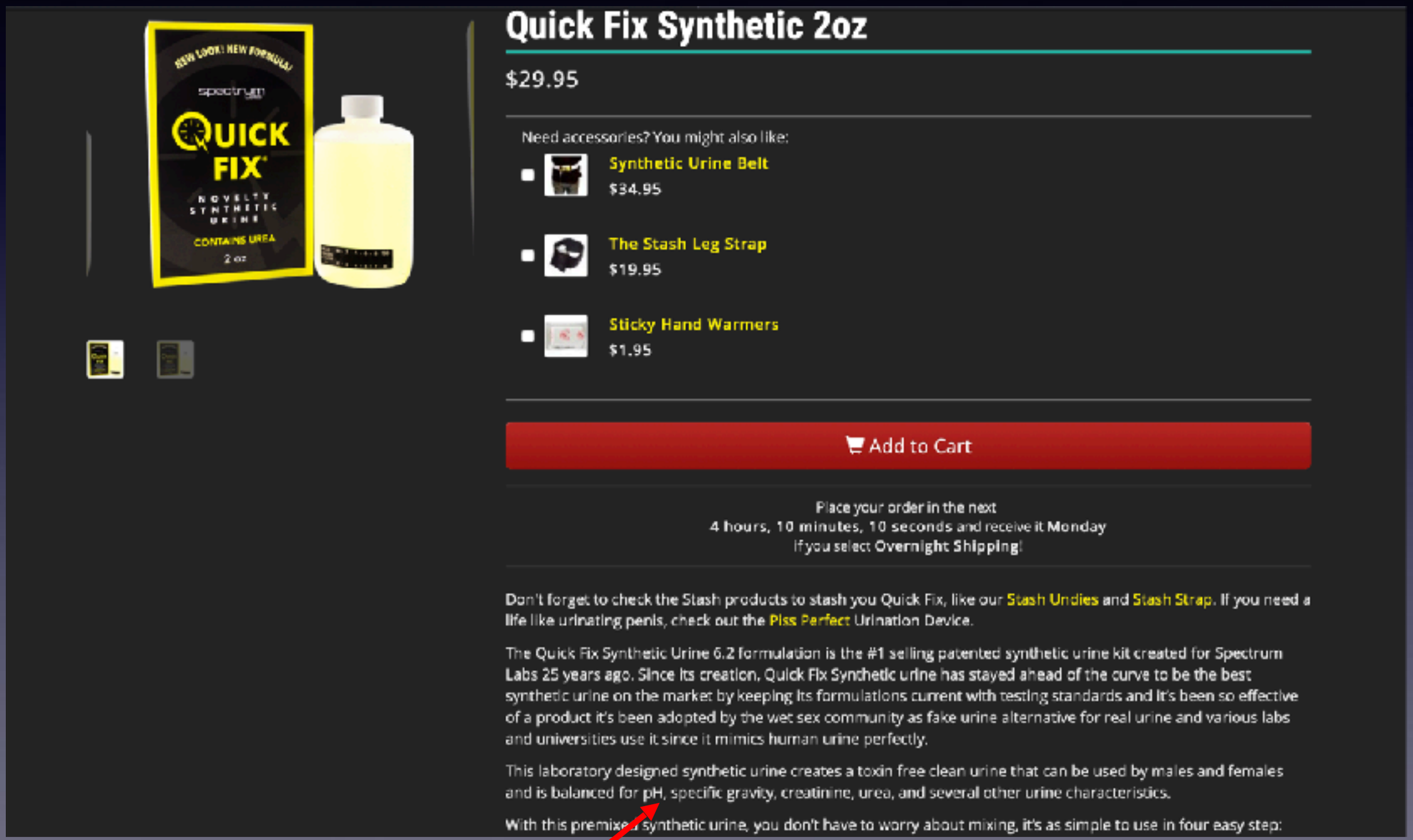
- Unisex use
- Safety sealed for your protection
- Includes 2 Clear Choice heat pads
- Includes our Heat Activator Powder – Raises temperature within seconds

Quickfixurine.com



Specimen Validity Tests (SVT)

- creatinine, UUN
- specific gravity
- pH
- nitrites
- gluteraldehyde
- pyridine
- chromium

Request SVT from testing laboratory or use dip-stick SVT products for on-site testing

Controlling Specimen Tampering

- develop challenging collection strategy - ie. make the testing unannounced and RANDOM!
- directly observed collections is the most effective approach to preventing adulteration and substitution
- inspect sample - train collection staff
- keep abreast of tampering techniques
- take temperature measurements (90˚ - 100˚ F)
- use laboratory employs specimen validity tests & use with on-site devices

Myth or Fact

- I tested positive because of a poppy seed bagel.

Myth or Fact

- Vigorous working out will clear drugs from my system.

Myth or Fact

- Sure jell will help you pass a drug test.

Myth or Fact

- I tested positive for cocaine due to a dental procedure that used lidocaine for numbing.

Myth or Fact

- THC can stay in your system for a month.

THC Duration in Blood

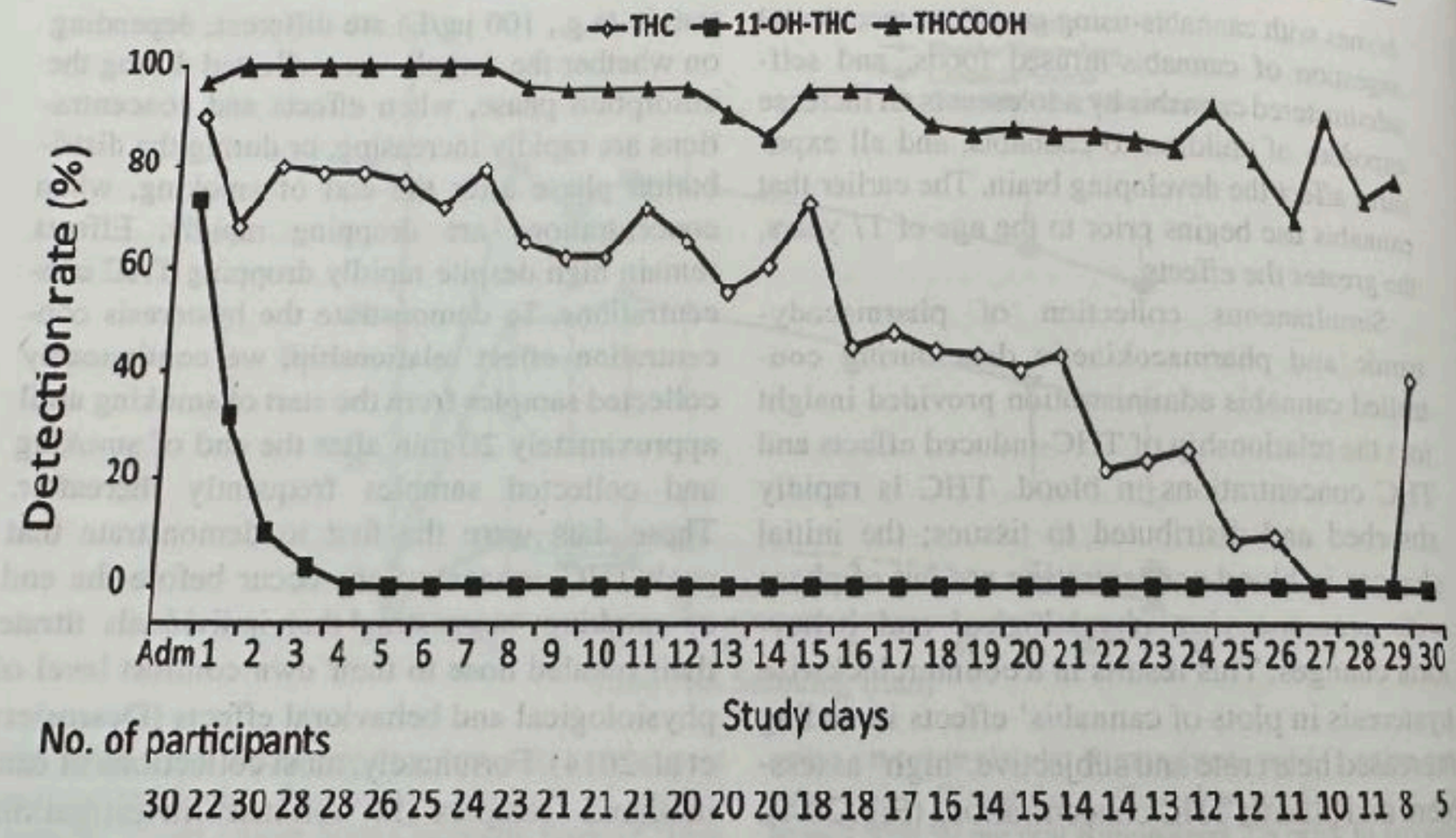


Fig. 24.5 Cannabinoid detection rates in chronic daily cannabis smokers on the basis of the method's limits of quantification, 0.25 μg/L for THC and THCCOOH and 0.5 μg/L for 11-OH-THC, documenting the long-term detection of cannabinoids in blood in this population. Reprinted from Bergamaschi et al. (2013) with permission from the American Association for Clinical Chemistry

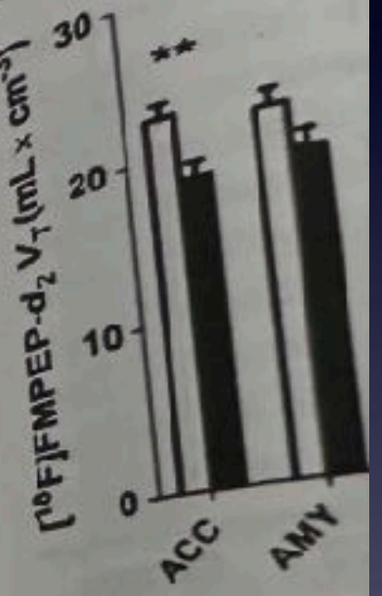


Fig. 24.6 Distri
FMPEP-d2 in co
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Values are adjus
Error bars are s.e
late cortex; AM

Myth or Fact

- I haven’t had any pot. It was secondhand smoke.

THC

J Anal Toxicol. 2015 Jan; 39(1): 1–12.
Published online 2014 Oct 17. doi: 10.1093/jat/bku116
PMCID: PMC4342697
PMID: 25326203

Non-Smoker Exposure to Secondhand Cannabis Smoke. I. Urine Screening and Confirmation Results

Edward J. Cone,[1,*] George E. Bigelow,[1] Evan S. Herrmann,[1] John M. Mitchell,[2] Charles LoDico,[3] Ronald Flegel,[3] and Ryan Vandrey[1]

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Abstract

Go to:

Increased cannabis potency has renewed concerns that secondhand exposure to cannabis smoke can produce positive drug tests. A systematic study was conducted of smoke exposure on drug-free participants. Six experienced cannabis users smoked cannabis cigarettes (5.3% THC in Session 1 and 11.3% THC in Sessions 2 and 3) in a sealed chamber. Six non-smokers were seated with smokers in an alternating manner. Sessions 1 and 2 were conducted with no ventilation and ventilation was employed in Session 3. Non-smoking participant specimens (collected 0–34 h) were analyzed with four immunoassays at different cutoff concentrations (20, 50, 75 and 100 ng/mL) and by GC-MS (LOQ = 0.75 ng/mL). No presumptive positives occurred for non-smokers at 100 and 75 ng/mL; a single positive occurred at 50 ng/mL; and multiple positives occurred at 20 ng/mL. Maximum THCCOOH concentrations by GC-MS for non-smokers ranged from 1.3 to 57.5 ng/mL. THCCOOH concentrations generally increased with THC potency, but room ventilation substantially reduced exposure levels. These results demonstrate that extreme cannabis smoke exposure can produce positive urine tests at commonly utilized cutoff concentrations. However, positive tests are likely to be rare, limited to the hours immediately post-exposure, and occur only under environmental circumstances where exposure is obvious.

Question Time

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