SAFE life™

C-Cup Multi-Drug Urine Test Cup

Catalogue No. See Box Label

The SAFElife™ C-Cup Multi-Drug Urine Test Cup contains competitive binding, lateral flow immunochromatographic assays for qualitative and simultaneous detection of 6-Monoacetylmorphine, Amphetamine, Secobarbital, Buprenorphine, Oxazepam, Cocaine, Cotinine, 2-ethylidene-1,5-dimethyl-3,3-diphenylpyrrolidine (EDDP), Ethyl Glucuronide, Fentanyl, Gabapentin, Hydromorphone, Synthetic Cannabinoids, Ketamine, Kratom, Lysergic acid diethylamide, Methylenedioxymethamphetamine, Methamphetamine, Morphine, Methadone, Methaqualone, Opiate, Oxycodone, Phencyclidine, Pregabalin, Propoxyphene, Nortriptyline, Cannabinoids, Tramadol and Alcohol in human urine with below cutoff concentrations and approximate detection time:

Drug (Identifier)	Calibrator	Cut-off Level	Minimum Detection Time	Maximum Detection Time
6-Monoacetylmorphine (6-MAM)	6-Monoacetylmorphine	10 ng/mL	2 hours	8 hours
Amphetamine (AMP300)	d-Amphetamine	300 ng/mL	2-7 hours	1-2 days
Amphetamine (AMP500)	d-Amphetamine	500 ng/mL	2-7 hours	1-2 days
Amphetamine (AMP1000)	d-Amphetamine	1000 ng/mL	2-7 hours	1-2 days
Secobarbital (BAR)	Secobarbital	300 ng/mL	2-4 hours	1-4 days
Buprenorphine (BUP5)	Buprenorphine	5 ng/mL	4 hours	1-3 days
Buprenorphine (BUP10)	Buprenorphine	10 ng/mL	4 hours	1-3 days
Oxazepam (BZO100)	Oxazepam	100 ng/mL	2-7 hours	1-2 days
Oxazepam (BZO200)	Oxazepam	200 ng/mL	2-7 hours	1-2 days
Oxazepam (BZO300)	Oxazepam	300 ng/mL	2-7 hours	1-2 days
Cocaine (COC100)	Benzoylecgonine	100 ng/mL	1-4 hours	2-4 days
Cocaine (COC150)	Benzoylecgonine	150 ng/mL	1-4 hours	2-4 days
Cocaine (COC300)	Benzoylecgonine	300 ng/mL	1-4 hours	2-4 days
Cotinine (COT)	Cotinine	200 ng/mL	2-8 hours	1-7 days
EDDP100	2-ethylidene-1,5-dimethyl-3,3-diphenylpyrrolidine	100 ng/mL	3-8 hours	1-3 days
EDDP300	2-ethylidene-1,5-dimethyl-3,3-diphenylpyrrolidine	300 ng/mL	3-8 hours	1-3 days
Ethyl Glucuronide (EtG300)	Ethyl Glucuronide	300 ng/mL	1-2 hours	Up to 3+ days
Ethyl Glucuronide (EtG500)	Ethyl Glucuronide	500 ng/mL	1-2 hours	Up to 3+ days
Fentanyl (FTY)	Norfentanyl	20 ng/mL	1-4 hours	1-3 days
Gabapentin (GAB)	Gabapentin	2000 ng/mL	5-7 hours	Up to 2 days
Hydromorphone (HMO)	Hydromorphone	300 ng/mL	4-6 hours	1-2 days
Synthetic Cannabinoid (K2)	JWH-018 Pentanoic Acid JWH-073 Butanoic Acid	50 ng/mL 50 ng/mL	8-12 hours	Up to 5+ days
Ketamine (KET300)	Ketamine	300 ng/mL	2-4 hours	2-3 days
Ketamine (KET1000)	Ketamine	1000 ng/mL	2-4 hours	2-3 days
Kratom (KRA100)	Mitragynine	100 ng/mL	7 hours	5-6 days
Kratom (KRA300)	Mitragynine	300 ng/mL	7 hours	5-6 days
Lysergic acid diethylamide (LSD)	Lysergic acid diethylamide	20 ng/mL	2.5 hours	Up to 5+ days
Methylenedioxymethamphetamine (MDMA)	3,4-Methylenedioxymethamphetamine (MDMA)	500 ng/mL	2-7 hours	2-4 days
Methamphetamine (MET300/mAMP300)	D(+)-Methamphetamine	300 ng/mL	2-7 hours	2-4 days
Methamphetamine (MET500/mAMP500)	D(+)-Methamphetamine	500 ng/mL	2-7 hours	2-4 days
Methamphetamine (MET1000/mAMP1000)	D(+)-Methamphetamine	1000 ng/mL	2-7 hours	2-4 days
Morphine (MOP100/OPI100)	Morphine	100 ng/mL	2 hours	2-3 days
Morphine (MOP300/OPI300)	Morphine	300 ng/mL	2 hours	2-3 days
Methadone (MTD200)	Methadone	200 ng/mL	3-8 hours	1-3 days
Methadone (MTD300)	Methadone	300 ng/mL	3-8 hours	1-3 days
Methaqualone (MQL)	Methaqualone	300 ng/mL	6-8 hours	Up to 7+ days
Opiate (OPI2000)	Morphine	2000 ng/mL	2 hours	2-3 days
Oxycodone (OXY)	Oxycodone	100 ng/mL	4 hours	1-3 days
Phencyclidine (PCP)	Phencyclidine	25 ng/mL	4-6 hours	7-14 days
Pregabalin (PGB)	Pregabalin	500 ng/mL	6-8hours	1-3 days
Propoxyphene (PPX)	Propoxyphene	300 ng/mL	2 hours	2-3 days
Nortriptyline (TCA)	Nortriptyline	1000 ng/mL	8-12 hours	2-7 days
Cannabinoids (THC15)	11-nor-Δ9-THC-9-COOH	15 ng/mL	2 hours	Up to 5+ days
Cannabinoids (THC25)	11-nor-Δ9-THC-9-COOH	25 ng/mL	2 hours	Up to 5+ days
Cannabinoids (THC40)	11-nor-Δ9-THC-9-COOH	40 ng/mL	2 hours	Up to 5+ days
Cannabinoids (THC50)	11-nor-Δ9-THC-9-COOH	50 ng/mL	2 hours	Up to 5+ days
Tramadol (TRA 100)	Tramadol	100 ng/mL	8-12 hours	3-7 days
Tramadol (TRA 200)	Tramadol	200 ng/mL	8-12 hours	3-7 days
Tramadol (TRA 1000)	Tramadol	1000 ng/mL	8-12 hours	3-7 days
Alcohol (ETOH)	Alcohol	0.04 g/dL	-	-

Configurations of the SAFElife™ C-Cup Multi-Drug Urine Test Cup can consist of any combination of the above listed drug analytes.

It is intended for forensic use only.

It is not intended to distinguish between prescription use or abuse of these drugs. Professional judgment should be applied to any drug of abuse test result, particularly in evaluating a preliminary positive result.

The tests provide only preliminary results. To obtain a confirmed analytical result, a more specific alternate chemical method must be used. Chromatography/Mass Spectrometry (GC/MS) or Liquid Chromatography/Tandem Mass Spectrometry (LC/MS-MS) is the recommended confirmatory method.

WARNINGS AND PRECAUTIONS

1. The test kit is for external use only.
2. Discard after first use. The test kit cannot be used more than once.
3. Do not use the test kit beyond expiration date.
4. Do not use the test kit if the pouch is punctured or not well sealed.
5. Keep out of the reach of children.

CONTENTS OF THE KIT

1. 25 SAFElife™ C-Cup Multi-Drug Urine Test Cups, each in one pouch with desiccant. The desiccants are for storage purposes only and are not used in the test procedure.
2. One (1) Package Insert
3. 5 Adulteration Color Comparison Charts (If equipped)
4. 25 Security Seals
5. 25 Pieces of Gloves

MATERIAL REQUIRED BUT NOT PROVIDED

Timer or Clock

STORAGE AND STABILITY

Store at 39°F-86°F (4°C-30°C) in the sealed pouch up to the expiration date.
Keep away from direct sunlight, moisture and heat.
DO NOT FREEZE.

SPECIMEN COLLECTION

WHEN TO COLLECT URINE FOR THE TEST?

Collect urine specimen after minimum detection time following suspected drug use. Urine collection time is very important in detecting any drugs of abuse. Each drug is cleared by the body and is detected in the urine at different times and rates. Please refer to the minimum or maximum detection time of each drug in this instruction.

HOW TO COLLECT URINE?

1. Remove the test cup from the foil pouch by tearing at the notch. Use it as soon as possible. Instruct the donor to remove the test cup lid and void directly into the test cup until reach the Minimum Urine Level mark (approximately 25 mL). It is acceptable to collect extra volume of urine. If insufficient specimen has been collected, instruct the donor to provide urine specimen again with another new test cup. Wipe off any splashes or spills that may be on the outside of the cup. It is recommended to wear gloves when handling the test cup with urine specimen.

2. Observe the temperature strip affixed on the test cup between 2 to 4 minutes after urine is voided into the cup. The temperature between 90°F - 100°F (32°C - 38°C) indicates the fresh uncontaminated specimen. If the temperature is out of this range, instruct the donor to provide urine specimen again with another new test cup.

TEST PROCEDURE

Test should be performed at room temperature 65°F-86°F (18°C-30°C).

1. After the urine has been collected properly, tighten the lid and place the cup on a flat surface.
2. Peel off the label from right to left.
3. For the adulteration strip(s) if equipped, read results immediately, or at 30 seconds, or at 45 seconds and compare each adulterant pad to verify pad color is within acceptable range according to the Adulteration Color Comparison Chart. If the results indicate adulteration, do not read the drug test results. Instruct the donor to provide urine specimen again with another new test cup.
4. For the alcohol test, read the alcohol test result at 2 minutes. **Do not read results after 2 minutes.**
5. For the drug tests, read the drug test results at 5 minutes. **Do not read results after 5 minutes.**

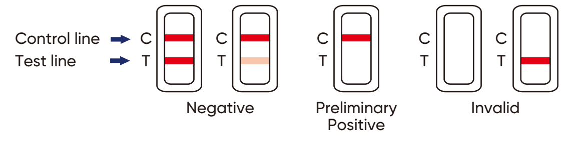
READING THE RESULTS

DRUG TEST:

Negative (-)
A colored band is visible in each Control Region (C) and the appropriate Test Region (T). It indicates that the concentration of the corresponding drug of that specific test zone is zero or below the detection limit of the test.

Preliminary Positive (+)
A colored band is visible in each Control Region (C). No colored band appears in the appropriate Test Region (T). It indicates a preliminary positive result for the corresponding drug of that specific test zone.

Invalid
If a colored band is not visible in each of the Control Region (C) or a colored band is only visible in the Test Region (T), the test is invalid. Another test should be run to re-evaluate the specimen. If the new test still provides an invalid result, please contact the distributor from whom you purchased the product. When calling, be sure to provide the lot number of the test.



Note: There is no meaning attributed to line color intensity or width.

A preliminary positive test result does not always mean a person took drugs and a negative test result does not always mean a person did not take drugs. There could be a number of factors that affect the reliability of drug tests.

ALCOHOL TEST:

Negative (-)
Almost no color change on test pad in comparison with the provided colored chart. The negative result indicates that the concentration of ethyl alcohol in urine is less than 0.04 g/dL.

Preliminary Positive (+)
A distinct color developed all over the pad. The positive result indicates that the concentration of ethyl alcohol in urine is 0.04% or higher.

Approximate Alcohol Concentration

0.0 mg/100 mL	40 mg/100 mL (0.04%)	80 mg/100 mL (0.08%)	200 mg/100 mL (0.2%)

Invalid
The test should be considered invalid if only the edge of the reaction pad turned color that might be ascribed to insufficient sampling. Another test should be run to re-evaluate the specimen. If test still fails, please contact the distributor, with the lot number.

What Is the False Positive Test?

The definition of the false positive test would be an instance where a substance is identified incorrectly by the SAFElife™ C-Cup Multi-Drug Urine Test Cup. The most common causes of the false positive test are cross reactants. Certain foods and medicines, diet plan drugs and nutritional supplements may cause the false positive test result.

What Is the False Negative Test?

The definition of the false negative test is that the initial drug is present but isn't detected by the SAFElife™ C-Cup Multi-Drug Urine Test Cup. If the specimen is diluted or adulterated, it may cause false negative result.

If suspect someone is taking drugs but get the negative test results, please test again at another time.

TEST LIMITATIONS

1. This test kit has been developed for testing urine specimen only. No other fluids have been evaluated. DO NOT use it to test anything other than urine.
2. Adulterated urine specimen may produce false results. Strong oxidizing agents such as bleach (hypochlorite) can oxidize drug analytes. If a specimen is suspected of being adulterated, obtain a new specimen.
3. It is possible that technical or procedural errors, as well as other interfering substances in the urine specimen may cause false results.
4. This test is a qualitative screening assay. It is not designed to determine the quantitative concentration of drugs or the level of intoxication.

SUMMARY

6-Monoacetylmorphine (6-MAM)
Heroin is rapidly metabolized in the body. The half-life in blood is only 3-9 minutes. It is degraded by esterase in the body to 6-monoacetylmorphine (hereinafter abbreviated as 6-MAM) and the molecular formula is $C_{21}H_{23}NO_5$. 6-MAM is deacetylated in the body to form morphine, and morphine cannot be acetylated to form 6-MAM in vivo. 6-MAM in the human body is only derived from the metabolism of heroin. Therefore, the US Department of Health and Human Services (DHHS) recommended 6-monoacetylmorphine as a specific test for heroin abuse.

Amphetamine (AMP)
Amphetamine and the structurally related "designer" drugs are sympathomimetic amines whose biological effects include potent central nervous system (CNS) stimulation, anorectic, hyperthermic, and cardiovascular properties. They are usually taken orally, intravenously, or by smoking. Amphetamines are readily absorbed from the gastrointestinal tract and are then either deactivated by the liver or excreted unchanged in the urine with a half-life of about 12 hours. It can be detected in the urine for 1 to 2 days after use. Amphetamine is metabolized to deaminated (hippuric and benzoic acids) and hydroxylated metabolites. Methamphetamine is partially metabolized to amphetamine and its major active metabolite. Amphetamines increase the heart rate and blood pressure, and suppress the appetite. Some studies indicate that heavy abuse may result in permanent damage to certain essential nerve structural in the brain.

Secobarbital (BAR)
Barbiturates are a class of central nervous system depressions. They have a wide range of half-life of 2 to 40 hours and can be detected in the urine for 1 to 4 days after use. Phenobarbital is a long acting barbiturate derivative that has been used as a daytime sedative and very extensively as an anticonvulsant. Pentobarbital and secobarbital are two examples of a short acting barbiturate sedative. Abuse of barbiturates can lead not only to impaired motor coordination and mental disorder, but also to respiratory collapse, coma and even death. Barbiturates are taken orally, rectally, or by intravenous and intramuscular injections. Short-acting barbiturates will generally be excreted in urine as metabolites, while the long-acting barbiturates will primarily appear unchanged.

Buprenorphine (BUP)
Buprenorphine is a potent analgesic often used in the treatment of opioid addiction. The drug is sold under the trade names Subutex™, Buprenex™, Temgesic™ and Suboxone™; all of which contain Buprenorphine HCl alone or in combination with Naloxone HCl. Therapeutically, Buprenorphine is used as a substitution treatment for opioid addicts. A substitution treatment is a form of medical care offered to opiate addicts (primarily heroin addicts) based on a similar or identical substance to the drug normally used. In substitution therapy, Buprenorphine is as effective as Methadone but demonstrates a lower level of physical dependence. The plasma half-life of Buprenorphine is 2-4 hours. While complete elimination of a single-dose of the drug can take as long as 6 days, the detection window for the parent drug in urine is thought to be approximately 3 days.

Oxazepam (BZO)
Benzodiazepines are the most widely used anxiolytic drugs. They are used extensively as anti-anxiety agents, hypnotics, muscle relaxants and anti-convulsants. They are taken orally or sometimes by injection and have a wide range of half-life from 2 to 40 hours. They can generally be detected for 1 to 2 days after Benzodiazepines use. Benzodiazepines are metabolized in the liver. Some Benzodiazepines and their metabolites are excreted in the urine. Their use can result in drowsiness and/or confusion. Benzodiazepines potentiate alcohol and other CNS depressants. Psychological and physical dependence on benzodiazepines can develop if high doses of the drug are given over a prolonged period.

Cocaine (COC)
Cocaine derived from leaves of coca plant, is a potent central nervous system stimulant and a local anesthetic. Among the psychological effects induced by using cocaine are euphoria, confidence and a sense of increased energy, accompanied by increased heart rate, dilation of the pupils, fever, tremors and sweating. Cocaine is excreted in urine primarily as benzoylecgonine in a short period of time.

Cotinine (COT)
Cotinine is an alkaloid found in tobacco and is also a major metabolite of Nicotine, which produces stimulation of the autonomic ganglia and central nervous system when in humans. Nicotine is found in tobacco products such as cigarettes, tobacco chew, and nicotine patches or gums. It is an addictive substance and is poisonous in a large amount. In addition to addiction, some of the other substances within tobacco products, such as carbon monoxide or tar, are dangerous to the body and can lead to medical conditions such as emphysema, lung cancer, and heart disease. In a 24-hour urine, approximately 5% of a nicotine dose is excreted as unchanged drug with 10% as cotinine and 35% as hydroxycotinine; the concentrations of other metabolites are believed to account for less than 5%. While Cotinine is thought to be an inactive metabolite, its elimination profile is more stable than that of Nicotine which is largely urine PH dependent. Cotinine is stable in body fluids and has a relatively long half-life of approximately 17 hours, and is typically detectable for several days (up to one week) after the use of tobacco, therefore the detection of Cotinine is less dependent on the time of sampling than that of Nicotine. Nicotine and Cotinine are rapidly eliminated by the kidney; the window of detection for cotinine in urine at a cutoff level of 200 ng/mL is expected to be up to 2~3 days after nicotine use.

EDDP
EDDP (2-ethylidene -1, 5-dimethyl-3, 3-diphenylpyrrolidine) is the primary metabolite of methadone. Methadone is a synthetic analgesic drug that is originally used in the treatment of narcotic addicts. The detection of EDDP is more beneficial than traditional methadone screening since EDDP exists only in urine from individuals that ingested methadone. The tampering of specimens by spiking the urine with methadone can be prevented. Secondly, renal clearance of EDDP is not affected by urinary pH, therefore the EDDP test provides a more accurate result of methadone ingestion than the methadone parent screening.

Ethyl Glucuronide (EtG)
Ethyl Glucuronide is a direct metabolite of alcohol. Presence in urine may be used to detect recent alcohol intake, even after alcohol is no longer measurable. Traditional laboratory methods detect the actual alcohol in the body, which reflects current intake within the past few hours (depending on how much was consumed). The presence of EtG in urine is a definitive indicator that it can be detected in the urine for 3 to 4 days after drinking alcohol, even alcohol is eliminated from the body. Therefore, EtG is a more accurate indicator of the recent intake of alcohol than measuring for the presence of alcohol itself. The EtG test can aid in the diagnosis of drunk driving and alcoholism, which has important significance in the forensic identification and medical examination.

Fentanyl (FTY)
Fentanyl is a potent, synthetic narcotic analgesic with a rapid onset and short duration of action. It was first synthesized by Janssen Pharmaceutica (Belgium) in the late 1950s, and It is approximately 100 times more potent than morphine. Fentanyl is a strong agonist at the μ-opioid receptors. Historically it has been used to treat breakthrough pain and is commonly used in pre-procedures as a pain reliever as well as an anesthetic in combination with a benzodiazepine. Fentanyl is frequently given intrathecally as part of spinal anesthesia or epidurally for epidural anesthesia and analgesia.

Gabapentin (GAB)
Gabapentin (GAB), sold under the brand name Neurontin, is a medication used to treat epilepsy, neuropathic pain, hot flashes, and restless legs syndrome. In epilepsy, it may be used for those with partial seizures. It is recommended as one of a number of first line medications for the treatment of neuropathic pain in diabetic neuropathy, postherpetic neuralgia, and central neuropathic pain. It is also used to relieve nerve pain following shingles (a painful rash due to herpes zoster infection) in adults. The most common side effects of gabapentin include dizziness, fatigue, drowsiness, ataxia, peripheral edema (swelling of extremities), nystagmus, and tremor. Serious side effects may include an increased risk of suicide, aggressive behavior, and drug reaction with eosinophilia and systemic symptoms.

Hydromorphone (HMO)
Hydromorphone, also known as dihydromorphone or dihydromorphinone, is a semi-synthetic strong analgesic. Its structure is similar to morphine, its analgesic effect is about 8 times that of morphine, and its side effects are lighter than morphine. It is mainly used for relieving medium-intensity pain caused by cancer, postoperative and soft tissue trauma.

Synthetic cannabinoids (K2)
Synthetic cannabinoids are psychoactive designer drugs derived of natural herbs sprayed with synthetic chemicals that, when consumed, allegedly mimic the effects of cannabis, It is best known by the brand names K2 and Spice. Synthetic cannabinoids act on the body in a similar way to cannabinoids naturally found in cannabis, such as THC. Although synthetic cannabinoids do not produce positive results in drug tests for cannabis, it is possible to detect its metabolites in human urine.

Ketamine (KET)
Ketamine is a sort of medical stupefacient. The principal metabolites are non-ketamine. Smoking, mainlining, snuffing, and dissolving into drink or alcohol are the primary method of use of ketamine. Ketamine is usually administered in combination with heroin, marijuana etc. for the relief of moderate to severe pain. Overdose may cause central nervous system effects, do harm to liver and kidney, and even cause death. Ketamine is metabolized in the liver. Over 70% ketamine metabolites and only 5% original drugs are excreted in the urine. They can generally be detected for 2 to 4 hours after ketamine use.

Kratom (KRA)
Kratom (Mitragyna speciosa) is a plant indigenous to Thailand and Southeast Asia. Kratom leaves produce complex stimulant and opioid-like analgesic effects. In Asia, it is often used to stave off fatigue and to manage pain, diarrhea, cough, and opioid withdrawal. Recently, kratom has become widely available in the United States and Europe by means of smoke shops and the Internet. The clinical manifestations of kratom are not well defined and studies are limited, but its safety profile has become a national and international concern, primarily due to excessive consumption being linked to increase in hospital visits for hepatic injury, seizures, coma, and death. The main active ingredients include Mitragynine and 7-Hydroxymitrgynine, which can be detected in urine up to 72 hrs (1-3).

Lysergic acid diethylamide (LSD)
Lysergic acid diethylamide (LSD) is a white powder or colorless liquid that is a strong semi artificial hallucinogen. LSD is manufactured from Lysergic acid which occurs naturally in the ergot fungus that grows on wheat and rye. It is a schedule I controlled substance, available in liquid, Powder, tablet (microdots), and capsule form. LSD is a non-selective 5-HTagonost, may exert its hallucinogenic effect by interacting with 5-HT 2Areceptors as a partial agonist and modulating the NMDA receptors, producing a marked slowing of the firing rate of serotonergic neurons. LSD can cause the user's senses, feelings, memory, and self-awareness to intensify and change for 6 to 12 hours. In addition to causing mental confusion, LSD can also cause physical pain, with symptoms in the nervous system, cardiovascular, and digestive systems. Most LSD users use marijuana, heroin, or other drugs together.

Methylenedioxymethamphetamine (MDMA)
Methylenedioxymethamphetamine (ecstasy) is a designer drug first synthesized in 1914 by a German drug company for the treatment of obesity. Those who take the drug frequently report adverse effects, such as increased muscle tension and sweating. MDMA is not clearly a stimulant, although it has, in common with amphetamine drugs, a capacity to increase blood pressure and heart rate. MDMA does produce some perceptual changes in the form of increased sensitivity to light, difficulty in focusing, and blurred vision in some users. Its mechanism of action is thought to be via release of the neurotransmitter serotonin. MDMA may also release dopamine, although the general opinion is that this is a secondary effect of the drug (Nichols and Oberlender, 1990). The most pervasive effect of MDMA, occurring in virtually all people who took a reasonable dose of the drug, was to produce a clenching of the jaws.

Methamphetamine (MET/mAMP)
Methamphetamine is a potent sympathomimetic agent with therapeutic applications. Acute higher doses lead to enhanced stimulation of the central nervous system and induce euphoria, alertness, and a sense of increased energy and power. More acute responses produce anxiety, paranoia, psychotic behavior, and cardiac dysrhythmias. The pattern of psychosis which may appear at half-life of about 15 hours and is excreted in urine as amphetamine and oxidized as deaminated and hydroxylated derivatives. However, 40% of methamphetamine is excreted unchanged. Thus the presence of the parent compound in the urine indicates methamphetamine use.

Morphine (MOP/OPI)
The opiates such as heroin, morphine, and codeine are derived from the resin of opium poppy. The principal metabolites of opiates are morphine, morphine-3-glucuronide normorphine and codeine with a half-life of about 3 hours. Heroin is quickly metabolized to morphine. Thus, morphine and morphine glucuronide might both be found in the urine of a person who has taken only heroin. The body also changes codeine to morphine. Thus, the presence of morphine (or the metabolite, morphine glucuronide) in the urine indicates heroin, morphine and/or codeine use. The test for Morphine (MOP300/OPI300) of the SAFElife™ C-Cup Multi-Drug Urine Test Cup yields a positive result when the morphine in urine exceeds 300 ng/mL.

Methadone (MTD)
Methadone is a synthetic analgesic drug that is originally used in the treatment of narcotic addicts. Among the psychological effects induced by using methadone are analgesia, sedation and respiratory depression. Overdose of methadone may cause coma or even death. It is administered orally or intravenously and is metabolized in the liver and excreted in urine as methadone, EDDP, EMDA and methadol. The kidneys are a major route of methadone excretion. Methadone has a biological half-life of 15 to 60 hours.

Methaqualone (MQL)
Methaqualone is a sedative that falls outside the benzodiazepine and barbiturate classes. It was once a popular pharmaceutical and recreational drug, but its current use is largely relegated to Africa, particularly South Africa. Because it faced few restrictions when it first entered the market, the drug was widely prescribed and perceived as uniquely safe. We now know methaqualone can be used recreationally and can cause physical dependence. A lot of lore exists around the effects. In reality, it's not a massively unique substance and it can be compared to barbiturates, ethanol, carisoprodol, and meprobamate. Methaqualone is a sedative that increases the activity of the GABA receptors in the brain and nervous system. When GABA activity is increased, blood pressure drops and the breathing and pulse rates slow, leading to a state of deep relaxation. These properties explain why methaqualone was originally mainly prescribed for insomnia. Methaqualone peaks in the bloodstream within several hours, with a half-life of 20–60 hours. Regular users build up a physical tolerance, requiring larger doses for the same effect. Overdose can lead to nervous system shutdown, coma and death.

Opiate (OPI)
Opiate refers to any drug that is derived from the opium poppy, including the natural products, morphine and codeine, and the semi-synthetic drugs such as heroin. Opioid is more general, referring to any drug that acts on the opioid receptor. Opioid analgesics comprise a large group of substances which control pain by depressing the central nervous system. Large doses of morphine can produce higher tolerance levels, physiological dependency in users, and may lead to substance abuse. Morphine is excreted unmetabolized, and is also the major metabolic product of codeine and heroin. Morphine is detectable in the urine for several days after an opiate dose. The test for Morphine 2000 (OPI) of the SAFElife™ C-Cup Multi-Drug Urine Test Cup yields a positive result when the morphine in urine exceeds 2000 ng/mL.

Oxycodone (OXY)
Oxycodone is known as Oxycontin and Roxicodone. It is an ingredient of Percodan, Percocet, Roxicet and Tylox. Oxycodone is a semi-synthetic opiates derived from opium. Like other opiates, Oxycodone is characterized by its analgesic properties, and the tendency for users to form a physical dependency and develop tolerance with extended use. Oxycodone is usually administered in combination with non-opiate analgesics such as acetaminophen and salicylates for the relief of moderate to severe pain. Oxycodone is a central nervous system depressant that may cause drowsiness, dizziness, lethargy, weakness and confusion. Toxicity in an overdose of Oxycodone can lead to stupor, coma, muscle flaccidity, severe respiratory depression, hypotension, and cardiac arrest. Oxycodone is metabolized by N- and O-demethylation. One of the metabolites, oxymorphone, is a potent narcotic analgesic, while the other, noroxycodone, is relatively inactive. Between 33 to 61% of a single dose of Oxycodone is excreted in a 24-hour urine collection and consists of 13-19% free Oxycodone, 7-29% glucuronide conjugated Oxycodone, 13-14% glucuronide conjugated oxymorphone and an unknown amount of noroxycodone. The detection time window of Oxycodone is 1-3 days following use.

Phencyclidine (PCP)
Phencyclidine is an arylcyclohexylamine that was originally used as an anesthetic agent and a veterinary tranquilizer. Phencyclidine can produce hallucinations, lethargy, disorientation, loss of coordination, trance-like ecstatic states, a sense of euphoria and visual distortions. It has many street names, such as "angel dust" and "crystal cyclone," etc. phencyclidine can be administered orally, by nasal ingestion, smoking, or by intravenous injection. It is metabolized in the liver and excreted through the kidneys in urine in unchanged form and oxidized metabolites with a half-life of about 12 hours. Suction and urinary acidification in the treatment of overdose typically reduces its half-life from three days to one day.

Pregabalin (PGB)
Pregabalin is an analogue of γ -aminobutyric acid (GABA), which is similar to gabapentin in structure and action, and has antiepileptic, analgesic and antianxiety activities. About 98% of pregabalin is recovered in the urine as the active drug after radiation labeling. Therefore, pregabalin abuse can be determined directly by measuring the amount of pregabalin in urine.

Propoxyphene (PPX)
Propoxyphene, a synthetic opiate agonist, is structurally similar to methadone. Propoxyphene is a narcotic analgesic used to relieve mild to moderate pain. The principal metabolites are nordextropropoxyphene. The combination usage of propoxyphene, aspirin, acetaminophen or other sedatives can lead cooperative interaction. Abuse of propoxyphene can lead nausea, vomit, astriction, illusion, hallucination, heart poisoning, lung dropsy and even death. Propoxyphene is metabolized in the liver and excreted in urine as nordextropropoxyphene. Thus the presence of the propoxyphene or its metabolites in the urine indicates propoxyphene use.

Nortriptyline (TCA)
TCA (Tricyclic Antidepressants) are commonly used for the treatment of depressive disorders. TCA overdoses can result in profound central nervous system depression, cardiotoxicity and anticholinergic effects. TCA overdose is the most common cause of death from prescription drugs. TCAs are taken orally or sometimes by injection. TCAs are metabolized in the liver. Both TCAs and their metabolites are excreted in urine mostly in the form of metabolites for up to ten days.

Cannabinoids (THC)
Cannabinoids are hallucinogenic agents derived from the flowering portion of the hemp plant. The active ingredients in Cannabinoids, THC & Cannabinol can be metabolized and excreted as 11-nor-Δ9-tetrahydrocannabinol-9-carboxylic acid with a half-life of 24 hours. They can be detected for 1 to 5 days after use. Smoking is the primary method of use of Cannabinoids/cannabis. Higher doses used by abusers produce central nervous system effects, altered mood and sensory perceptions, loss of coordination, impaired short-term memory, anxiety, paranoia, depression, confusion, hallucinations and increased heart rate. A tolerance to the cardiac and psychotropic effects can occur, and withdrawal syndrome produces restlessness, insomnia, anorexia and nausea.

Tramadol (TRA)
Tramadol [2-(dimethylaminomethyl)-1-(3-methoxyphenyl) cyclohexanol] is used similarly to codeine, to treat moderate to moderately severe pain. It is a synthetic analog of the phenanthrene alkaloid codeine and, as such, is an opioid and also a prodrug (codeine is metabolized to morphine, tramadol is converted to O-desmethyltramadol). Tramadol and its metabolites are excreted primarily in the urine with observed plasma half-lives of 6.3 and 7.4 hours for tramadol and O-desmethyltramadol (denoted M1), respectively. Approximately 30% of the dose is excreted in the urine as unchanged drug, whereas 60% of the dose is excreted as metabolites.

Alcohol (ETOH)
Alcohol Test is intended for use to detect the presence of alcohol in urine greater than 0.04%. Alcohol intoxication can lead to loss of alertness, coma, death and as well as birth defects. The BAC at which a person becomes impaired is variable. The United States Department of Transportation (DOT) has established a BAC of 0.02% (0.02 g/dL) as the cut-off level at which an individual is considered positive for the presence of alcohol. Since the urine alcohol concentration is normally higher than that in saliva and blood, the cutoff concentration for alcohol in urine was set at 0.04%. Normally, it will take at least 30 minutes for the alcohol to be detected in saliva, blood and urine after drinking.

PRINCIPLE

The SAFElife™ C-Cup Multi-Drug Urine Test Cup are competitive immunoassays that are used to screen for the presence of drugs of abuse in urine. It is a chromatographic absorbent device in which drugs in a sample competitively combine to a limited number of drug monoclonal antibody (mouse) conjugate binding sites.

When the absorbent end is immersed into urine specimen, the urine is absorbed into the device by capillary action, mixes with the respective drug monoclonal antibody conjugate, and flows across the pre-coated membrane. When sample drug levels are zero or below the target cutoff (the detection sensitivity of the test), respective drug monoclonal antibody conjugate binds to the respective drug-protein conjugate immobilized in the Test Region (T) of the device. This produces a colored band in the Test Region (T) that, regardless of its intensity, indicates a negative result.

When sample drug levels are at or above the target cutoff, the free drug in the sample binds to the respective drug monoclonal antibody conjugate preventing the respective drug monoclonal antibody conjugate from binding to the respective drug-protein conjugate immobilized in the Test Region (T) of the device. This prevents the development of a distinct colored band in the Test Region (T), indicating a potentially positive result.

To serve as a procedure control, a colored band will appear at the Control Region (C), where the Goat anti mouse IgG polyclonal antibody immobilized in, if the test has been performed properly.

QUALITY CONTROL

Users should follow the appropriate federal, state, and local guidelines concerning the frequency of assaying external quality control materials. Even though there is an internal procedural control line in the test device in the Control Region (C), the use of external controls is strongly recommended as good laboratory testing practice to confirm the test procedure and to verify proper test performance. Positive and negative controls should give the expected results. When testing the positive and negative controls, the same assay procedure should be adopted. External Control (positive and negative) should be run with each new lot, each new shipment and each new operator to determine that tests are working properly.

PERFORMANCE CHARACTERISTICS

ADULTERATION CONTROL:

Expected Results

Creatinine (CR): Creatinine reacts with a creatinine indicator in an alkaline medium to form a purplish-brown color complex if creatinine in the urine is present at the normal level. The color intensity is directly proportional to the concentration of creatinine. A urine specimen with creatinine concentration of less than 20 mg/dL produces a very light, or no pad color change, which indicates adulteration in the form of specimen dilution.

Glutaraldehyde (GL): Glutaraldehyde is not a natural component of human urine and it should not be present in normal urine. The presence of glutaraldehyde in the urine specimen indicates the possibility of adulteration. However, false positive may result when ketone bodies are present in urine. Ketone bodies may appear in urine when a person is in ketoacidosis, starvation or other metabolic abnormalities.

Nitrite (NI): Although nitrite is not a normal component of urine, nitrite levels of up to 3.6 mg/dL may be found in some urine specimens due to urinary tract infections, bacterial contamination or improper storage. In this adulteration control, nitrite level above 15 mg/dL is considered abnormal.

Oxidants/Bleach (OX): The presence of Bleach and other oxidizing reagents in the urine is indicative of adulteration since oxidizing reagents are not normal constituents of urine. Other oxidizing reagents include Hydrogen Peroxide, Ferricyanide, Persulfate, Pyridinium Chlorochromate etc.

pH (PH): Normal urine pH ranges from 4.5 to 8.0. Values below pH 4.0 or above pH 9.0 are indicative of adulteration.

Specific Gravity (S.G.): The specific gravity test is based on the pKa change of certain pretreated polyelectrolytes in relation to the ionic concentration. The pad colors will change from dark blue to blue-green in urine of low ionic concentration to green and yellow-green in urine of higher ionic concentration. A urine specific gravity below 1.003 or above 1.025 is considered abnormal.

DRUG TEST:

Accuracy

3920 (eighty of each drug) urine specimens were analyzed by GC-MS and by each corresponding drug test. Each test was read by three viewers. Samples were divided by concentration into five categories: Drug Free, Less than Half the Cutoff, Near Cutoff Negative, Near Cutoff Positive, and High Positive. Results were as follows:

Drug Test	Result		Drug Free	Less than Half the Cutoff	Near Cutoff Negative (Between 50% below the cutoff and the cutoff)	Near Cutoff Positive (Between the cutoff and 50% above the cutoff)	High Positive (Greater than 50% above the cutoff)	% Agreement with GC/MS or LC/MS (95%CI)
6-MAM	Viewer A	+	0	0	2	17	21	95% (83.5% - 98.6%)
		-	10	15	13	2	0	95% (83.5% - 98.6%)
	Viewer B	+	0	0	1	18	21	97.5% (87.1% - 99.6%)
		-	10	15	14	1	0	97.5% (87.1% - 99.6%)
	Viewer C	+	0	0	1	17	21	95% (83.5% - 98.6%)
		-	10	15	14	2	0	97.5% (87.1% - 99.6%)
AMP (300)	Viewer A	+	0	0	2	29	11	100% (91.2% - 100%)
		-	10	17	11	0	0	95% (83.5% - 98.6%)
	Viewer B	+	0	0	1	29	11	100% (91.2% - 100%)
		-	10	17	12	0	0	97.5% (87.1% - 99.6%)
	Viewer C	+	0	0	1	29	11	100% (91.2% - 100%)
		-	10	17	12	0	0	97.5% (87.1% - 99.6%)
AMP (500)	Viewer A	+	0	0	2	30	10	100% (91.2% - 100%)
		-	10	17	11	0	0	95% (83.5% - 98.6%)
	Viewer B	+	0	0	1	30	10	100% (91.2% - 100%)
		-	10	17	12	0	0	97.5% (87.1% - 99.6%)
	Viewer C	+	0	0	2	30	10	100% (91.2% - 100%)
		-	10	17	11	0	0	95% (83.5% - 98.6%)
AMP (1000)	Viewer A	+	0	0	1	11	29	100% (84.5% - 100%)
		-	10	18	11	0	0	97.5% (82% - 100%)
	Viewer B	+	0	0	2	11	29	100% (84.5% -100%)
		-	10	18	10	0	0	95% (79.5% - 100%)
	Viewer C	+	0	0	2	11	29	100% (84.5% -100%)
		-	10	18	10	0	0	95% (79.5% - 100%)
BAR	Viewer A	+	0	0	2	20	20	100% (84.5% -100%)
		-	10	10	18	0	0	95% (79.5% - 100%)
	Viewer B	+	0	0	2	20	20	100% (84.5% -100%)
		-	10	10	18	0	0	95% (79.5% - 100%)
	Viewer C	+	0	0	2	20	20	100% (84.5% -100%)
		-	10	10	18	0	0	95% (79.5% - 100%)
BUP (5)	Viewer A	+	0	0	1	16	24	100% (84.5% - 100%)
		-	10	18	11	0	0	97.5% (82% - 100%)
	Viewer B	+	0	0	1	16	24	100% (84.5% - 100%)
		-	10	18	11	0	0	97.5% (82% - 100%)
	Viewer C	+	0	0	2	16	24	100% (84.5% - 100%)
		-	10	18	10	0	0	95% (79.5% - 100%)
BUP (10)	Viewer A	+	0	0	1	16	24	100% (84.5% - 100%)
		-	10	18	11	0	0	97.5% (82% - 100%)
	Viewer B	+	0	0	1	16	24	100% (84.5% - 100%)
		-	10	18	11	0	0	97.5% (82% - 100%)
	Viewer C	+	0	0	2	16	24	100% (84.5% - 100%)
		-	10	18	10	0	0	95% (79.5% - 100%)
BZO (100)	Viewer A	+	0	0	2	21	18	97.5% (91.2% - 100%)
		-	10	18	10	1	0	95.0% (83.5% - 98.6%)
	Viewer B	+	0	0	1	20	18	95% (91.2% - 100%)
		-	10	18	11	2	0	97.5% (87.1% - 99.6%)
	Viewer C	+	0	0	1	22	18	100% (91.2% - 100%)
		-	10	18	11	0	0	95% (87.1% - 99.6%)
BZO (200)	Viewer A	+	0	0	2	22	18	100% (91.2% - 100%)
		-	10	18	10	0	0	95.0% (83.5% - 98.6%)
	Viewer B	+	0	0	1	22	18	100% (91.2% - 100%)
		-	10	18	11	0	0	97.5% (87.1% - 99.6%)
	Viewer C	+	0	0	1	22	18	100% (91.2% - 100%)
		-	10	18	11	0	0	95% (87.1% - 99.6%)
BZO (300)	Viewer A	+	0	0	2	20	20	100% (84.5% -100%)
		-	10	10	18	0	0	95% (79.5% - 100%)
	Viewer B	+	0	0	2	20	20	100% (84.5% -100%)
		-	10	10	18	0	0	95% (79.5% - 100%)
	Viewer C	+	0	0	2	20	20	100% (84.5% -100%)
		-	10	10	18	0	0	95% (79.5% - 100%)
COC (100)	Viewer A	+	0	0	2	27	13	100% (91.2% -100%)
		-	10	15	13	0	0	95% (83.5% - 98.6%)
	Viewer B	+	0	0	2	27	13	100% (91.2% - 100%)
		-	10	15	13	0	0	95% (83.5% - 98.6%)
	Viewer C	+	0	0	1	27	13	100% (91.2% -100%)
		-	10	15	14	0	0	97.5% (87.1% - 99.6%)
COC (150)	Viewer A	+	0	0	2	30	10	100% (91.2% - 100%)
		-	10	18	10	0	0	95% (83.5% - 98.6%)
	Viewer B	+	0	0	1	30	10	100% (91.2% - 100%)
		-	10	18	11	0	0	97.5% (87.1% - 99.6%)
	Viewer C	+	0	0	2	30	10	100% (91.2% - 100%)
		-	10	18	10	0	0	95% (83.5% - 98.6%)
COC (300)	Viewer A	+	0	0	2	11	29	100% (84.5% -100%)
		-	10	10	18	0	0	95% (79.5% - 100%)
	Viewer B	+	0	0	1	11	29	100% (84.5% - 100%)
		-	10	10	19	0	0	97.5% (82% - 100%)
	Viewer C	+	0	0	2	11	29	100% (84.5% - 100%)
		-	10	10	18	0	0	95% (79.5% - 100%)
COT	Viewer A	+	0	0	2	29	10	97.5% (84.5% -100%)
		-	10	10	18	1	0	95% (79.5% - 100%)
	Viewer B	+	0	0	1	28	10	95% (84.5% - 100%)
		-	10	10	19	2	0	97.5% (82% - 100%)
	Viewer C	+	0	0	2	29	10	97.5% (84.5% - 100%)
		-	10	10	18	1	0	95% (79.5% - 100%)
EDDP (100)	Viewer A	+	0	0	1	28	10	95% (91.2% - 100%)
		-	10	18	9	2	0	97.5% (83.5% - 98.6%)
	Viewer B	+	0	0	1	29	10	97.5% (91.2% - 100%)
		-	10	18	11	1	0	97.5% (87.1% - 99.6%)
	Viewer C	+	0	0	2	30	10	100% (91.2% - 100%)
		-	10	18	10	0	0	95% (83.5% - 98.6%)
EDDP (300)	Viewer A	+	0	0	2	29	10	97.5% (91.2% - 100%)
		-	10	18	10	1	0	95% (83.5% - 98.6%)
	Viewer B	+	0	0	1	29	10	97.5% (91.2% - 100%)
		-	10	18	11	1	0	97.5% (87.1% - 99.6%)
	Viewer C	+	0	0	2	30	10	100% (91.2% - 100%)
		-	10	18	10	0	0	95% (83.5% - 98.6%)
EtG (300)	Viewer A	+	0	0	0	17	21	95% (79.5% - 100%)
		-	10	12	18	2	0	100% (84.5% - 100%)
	Viewer B	+	0	0	0	18	21	97.5% (82% - 100%)
		-	10	12	18	1	0	100% (84.5% - 100%)
	Viewer C	+	0	0	0	18	21	97.5% (82% - 100%)
		-	10	12	18	1	0	100% (84.5% - 100%)
EtG (500)	Viewer A	+	0	0	0	17	21	95% (79.5% - 100%)
		-	10	12	18	2	0	100% (84.5% - 100%)
	Viewer B	+	0	0	0	18	21	97.5% (82% - 100%)
		-	10	12	18	1	0	100% (84.5% - 100%)
	Viewer C	+	0	0	0	18	21	97.5% (82% - 100%)
		-	10	12	18	1	0	100% (84.5% - 100%)
FTY	Viewer A	+	0	0	1	18	22	100% (84.5% - 100%)
		-	10	12	17	0	0	97.5% (82% - 100%)
	Viewer B	+	0	0	1	18	22	100% (84.5% - 100%)
		-	10	12	17	0	0	97.5% (82% - 100%)
	Viewer C	+	0	0	1	18	22	100% (84.5% - 100%)
		-	10	12	17	0	0	97.5% (82% - 100%)
GAB	Viewer A	+	0	0	2	1	25	96.3% (81.03% - 99.91%)
		-	50	0	1	1	0	96.2% (87.02% - 99.54%))
	Viewer B	+	0	0	1	2	25	100% (87.23%-100.00%)
		-	50	0	2	0	0	96.2% (87.02% - 99.54%)
	Viewer C	+	0	0	1	1	25	96.3% (81.03% - 99.91%)
		-	50	0	2	1	0	98.1% (89.93% - 99.95%)
HMO	Viewer A	+	0	0	2	18	21	97.5% （87.1%-99.6%）
		-	10	16	12	1	0	95% （83.5%-98.6%）
	Viewer B	+	0	0	1	18	21	97.5% （87.1%-99.6%）
		-	10	16	13	1	0	97.5% （87.1%-99.6%）
	Viewer C	+	0	0	2	17	21	95% （83.5%-98.6%）
		-	10	16	12	2	0	95% （83.5%-98.6%）
K2	Viewer A	+	0	0	1	18	22	100% (84.5% -100%)
		-	10	12	17	0	0	97.5% (82% - 100%)
	Viewer B	+	0	0	0	17	22	97.5% (82% - 100%)
		-	10	12	18	1	0	100% (84.5% - 100%)
	Viewer C	+	0	0	0	15	22	92.5% (77% - 100%)
		-	10	12	18	3	0	100% (84.5% - 100%)
KET (300)	Viewer A	+	0	0	0	17	21	95% (79.5% - 100%)
		-	10	12	18	2	0	100% (84.5% - 100%)
	Viewer B	+	0	0	1	18	21	97.5% (82% - 100%)
		-	10	12	17	1	0	97.5% (84.5% - 100%)
	Viewer C	+	0	0	0	18	21	97.5% (82% - 100%)
		-	10	12	18	1	0	100% (84.5% - 100%)
KET (1000)	Viewer A	+	0	0	2	17	21	95% (79.5% - 100%)
		-	10	12	16	2	0	95% (84.5% - 100%)
	Viewer B	+	0	0	0	18	21	97.5% (82% - 100%)
		-	10	12	18	1	0	100% (84.5% - 100%)
	Viewer C	+	0	0	0	18	21	97.5% (82% - 100%)
		-	10	12	18	1	0	100% (91.2% - 100%)
KRA (100)	Viewer A	+	0	0	2	20	20	100% (91.19% - 100.00%)
		-	10	10	18	0	0	95% (83.08% - 99.39%)
	Viewer B	+	0	0	1	20	20	100% (91.19% - 100.00%)
		-	10	10	19	0	0	97.5% (86.84% - 99.94%)
	Viewer C	+	0	0	2	20	20	100% (91.19% - 100.00%)
		-	10	10	18	0	0	95% (83.08% - 99.39%)
KRA (300)	Viewer A	+	0	0	2	20	20	100% (84.5% - 100%)
		-	10	10	18	0	0	95% (79.5% - 100%)
	Viewer B	+	0	0	1	20	20	100% (84.5% - 100%)
		-	10	10	19	0	0	97.5% (79.5% - 100%)
	Viewer C	+	0	0	2	20	20	100% (84.5% - 100%)
		-	10	10	18	0	0	95% (79.5% - 100%)
LSD	Viewer A	+	0	0	0	17	21	95% (79.5% - 100%)
		-	10	12	18	2	0	100% (84.5% - 100%)
	Viewer B	+	0	0	1	18	21	97.5% (82% - 100%)
		-	10	12	17	1	0	97.5% (84.5% - 100%)
	Viewer C	+	0	0	0	18	21	97.5% (82% - 100%)
		-	10	12	18	1	0	100% (84.5% - 100%)
MDMA	Viewer A	+	0	0	2	20	20	100% (84.5% - 100%)
		-	10	10	18	0	0	95% (79.5% - 100%)
	Viewer B	+	0	0	2	20	20	100% (84.5% - 100%)
		-	10	10	18	0	0	95% (79.5% - 100%)
	Viewer C	+	0	0	2	20	20	100% (84.5% - 100%)
		-	10	10	18	0	0	95% (79.5% - 100%)
MET (mAMP) (300)	Viewer A	+	0	0	2	21	19	100% (91.2% - 100%)
		-	10	11	17	0	0	95% (83.5% - 98.6%)
	Viewer B	+	0	0	2	21	19	100% (91.2% - 100%)
		-	10	11	17	0	0	95% (83.5% - 98.6%)
	Viewer C	+	0	0	2	21	19	100% (91.2% - 100%)
		-	10	11	17	0	0	95% (83.5% - 98.6%)
MET (mAMP) (500)	Viewer A	+	0	0	2	20	20	100% (91.2% - 100%)
		-	10	15	13	0	0	95% (83.5% - 98.6%)
	Viewer B	+	0	0	2	20	20	100% (91.2% - 100%)
		-	10	15	13	0	0	95% (83.5% - 98.6%)
	Viewer C	+	0	0	2	20	20	100% (91.2% - 100%)
		-	10	15	13	0	0	95% (83.5% - 98.6%)
MET (mAMP) (1000)	Viewer A	+	0	0	1	20	20	100% (84.5% - 100%)
		-	10	16	13	0	0	97.5% (82% - 100%)
	Viewer B	+	0	0	2	20	20	100% (84.5% - 100%)
		-	10	16	12	0	0	95% (79.5% - 100%)
	Viewer C	+	0	0	2	20	20	100% (84.5% - 100%)
		-	10	16	12	0	0	95% (79.5% - 100%)
MOP100/OPI100	Viewer A	+	0	0	2	28	12	100% (91.2% - 100%)
		-	10	16	12	0	0	95% (83.5% - 98.6%)
	Viewer B	+	0	0	3	28	12	100% (91.2% - 100%)
		-	10	16	11	0	0	92.5% (80.1% - 97.4%)
	Viewer C	+	0	0	2	28	12	100% (91.2% - 100%)
		-	10	16	12	0	0	95% (83.5% - 98.6%)
MOP300/OPI300	Viewer A	+	0	0	2	20	20	100% (84.5% - 100%)
		-	10	19	9	0	0	95% (79.5% - 100%)
	Viewer B	+	0	0	2	20	20	100% (84.5% - 100%)
		-	10	19	9	0	0	95% (79.5% - 100%)
	Viewer C	+	0	0	1	20	20	100% (84.5% - 100%)
		-	10	19	10	0	0	97.5% (82% - 100%)
MTD (200)	Viewer A	+	0	0	2	15	25	100% (91.2% - 100%)
		-	10	13	15	0	0	95% (83.5% - 98.6%)
	Viewer B	+	0	0	2	15	25	100% (91.2% - 100%)
		-	10	13	15	0	0	95% (83.5% - 98.6%)
	Viewer C	+	0	0	1	15	25	100% (91.2% - 100%)
		-	10	13	16	0	0	97.5% (87.1% - 99.6)
MTD (300)	Viewer A	+	0	0	1	19	21	100% (84.5% - 100%)
		-	10	12	17	0	0	97.5% (82% - 100%)
	Viewer B	+	0	0	2	19	21	100% (84.5% - 100%)
		-	10	12	16	0	0	95% (79.5% - 100%)
	Viewer C	+	0	0	1	19	21	100% (84.5% - 100%)
		-	10	12	17	0	0	97.5% (82% - 100%)
MQL	Viewer A	+	0	0	2	29	10	97.5% (87.1% -99.6%)
		-	10	10	18	1	0	95% (83.5% - 98.6%)
	Viewer B	+	0	0	1	28	10	95% (83.5% - 98.6%)
		-	10	10	19	2	0	97.5% (87.1% - 99.6%)
	Viewer C	+	0	0	2	29	10	97.5% (87.1% - 99.6%)
		-	10	10	18	1	0	95% (83.5% - 98.6%)
OPI 2000	Viewer A	+	0	0	1	18	22	100% (84.5% - 100%)
		-	10	20	9	0	0	97.5% (82% - 100%)
	Viewer B	+	0	0	1	18	22	100% (84.5% - 100%)
		-	10	20	9	0	0	97.5% (82% - 100%)
	Viewer C	+	0	0	1	18	22	100% (84.5% - 100%)
		-	10	20	9	0	0	97.5% (82% - 100%)
OXY	Viewer A	+	0	0	1	19	21	100% (84.5% - 100%)
		-	10	20	9	0	0	97.5% (82% - 100%)
	Viewer B	+	0	0	1	19	21	100% (84.5% - 100%)
		-	10	20	9	0	0	97.5% (82% - 100%)
	Viewer C	+	0	0	1	19	21	100% (84.5% - 100%)
		-	10	20	9	0	0	97.5% (82% - 100%)
PCP	Viewer A	+	0	0	1	18	22	100% (84.5% - 100%)
		-	10	13	16	0	0	97.5% (82% - 100%)
	Viewer B	+	0	0	2	18	22	100% (84.5% - 100%)
		-	10	13	15	0	0	95% (79.5% - 100%)
	Viewer C	+	0	0	1	18	22	100% (84.5% - 100%)
		-	10	13	16	0	0	97.5% (82% - 100%)
PGB	Viewer A	+	0	0	2	17	22	97.5% （87.1%-99.6%）
		-	10	12	16	1	0	95% （83.5%-98.6%）
	Viewer B	+	0	0	1	17	22	97.5% （87.1%-99.6%）
		-	10	12	17	1	0	97.5% （87.1%-99.6%）
	Viewer C	+	0	0	1	16	22	95% （83.5%-98.6%）
		-	10	12	17	2	0	97.5% (87.1%-99.6%)
PPX	Viewer A	+	0	0	2	20	20	100% (84.5% -100%)
		-	10	10	18	0	0	95% (79.5% - 100%)
	Viewer B	+	0	0	2	20	20	100% (84.5% -100%)
		-	10	10	18	0	0	95% (79.5% - 100%)
	Viewer C	+	0	0	2	20	20	100% (84.5% -100%)
		-	10	10	18	0	0	95% (83.5% - 98.6%)
TCA	Viewer A	+	0	0	1	10	30	100% (84.5% - 100%)
		-	10	19	10	0	0	97.5% (82% - 100%)
	Viewer B	+	0	0	2	10	30	100% (84.5% - 100%)
		-	10	19	9	0	0	95% (79.5% - 100%)
	Viewer C	+	0	0	1	10	30	100% (84.5% - 100%)
		-	10	19	10	0	0	97.5% (82% - 100%)
THC (15)	Viewer A	+	0	0	1	15	23	95% (83.5%-98.6%)
		-	10	16	13	2	0	97.5% (87.1%-99.6%)
	Viewer B	+	0	0	2	16	23	97.5% (87.1%-99.6%)
		-	10	16	12	1	0	95% (83.5%-98.6%)
	Viewer C	+	0	0	2	16	23	97.5% (87.1%-99.6%)
		-	10	16	12	1	0	95% (83.5%-98.6%)
THC (25)	Viewer A	+	0	0	1	17	22	97.5% (84.5% - 100%)
		-	10	12	17	1	0	97.5% (82% - 100%)
	Viewer B	+	0	0	1	18	22	100% (84.5% - 100%)
		-	10	12	17	0	0	97.5% (82% - 100%)
	Viewer C	+	0	0	1	18	22	100% (84.5% - 100%)
		-	10	12	17	0	0	97.5% (82% - 100%)
THC (40)	Viewer A	+	0	0	2	20	20	100% (91.2% - 100%)
		-	10	13	15	0	0	95% (83.5% - 98.6%)
	Viewer B	+	0	0	1	20	20	100% (91.2% - 100%)
		-	10	13	16	0	0	97.5% (87.1% - 99.6%)

	Viewer C	+	0	0	2	20	20	100% (91.2% - 100%)
		-	10	13	15	0	0	95% (83.5% - 98.6%)
THC (50)	Viewer A	+	0	0	1	18	22	100% (84.5% - 100%)
		-	10	12	17	0	0	97.5% (82% - 100%)
	Viewer B	+	0	0	1	18	22	100% (84.5% - 100%)
		-	10	12	17	0	0	97.5% (82% - 100%)
	Viewer C	+	0	0	1	18	22	100% (84.5% - 100%)
		-	10	12	17	0	0	97.5% (82% - 100%)
TRA (100)	Viewer A	+	0	0	2	19	21	100% (84.5% - 100%)
		-	10	20	8	0	0	95% (79.5% - 100%)
	Viewer B	+	0	0	1	19	20	97.5% (84.5% - 100%)
		-	10	20	9	1	0	97.5% (79.5% - 100%)
	Viewer C	+	0	0	1	18	20	95% (84.5% - 100%)
		-	10	20	9	2	0	97.5% (82% - 100%)
TRA (200)	Viewer A	+	0	0	2	19	21	100% (84.5% - 100%)
		-	10	20	8	0	0	95% (79.5% - 100%)
	Viewer B	+	0	0	2	19	21	100% (84.5% - 100%)
		-	10	20	8	0	0	95% (79.5% - 100%)
	Viewer C	+	0	0	1	19	21	100% (84.5% - 100%)
		-	10	20	9	0	0	97.5% (82% - 100%)
TRA (1000)	Viewer A	+	0	0	2	19	21	100% (84.5% - 100%)
		-	10	20	8	0	0	95% (79.5% - 100%)
	Viewer B	+	0	0	1	19	20	97.5% (84.5% - 100%)
		-	10	20	9	1	0	97.5% (79.5% - 100%)
	Viewer C	+	0	0	1	18	20	95% (84.5% - 100%)
		-	10	20	9	2	0	97.5% (82% - 100%)

Precision and Sensitivity

To investigate the precision and sensitivity, each drug sample was analyzed at the following concentrations: cutoff -100%, cutoff -75%, cutoff -50%, cutoff -25%, cutoff, cutoff +25%, cutoff +50%, cutoff +75% and the cutoff +100%. All concentrations were confirmed with GC-MS. The study was performed 2 runs /day and lasted 25 days using three different lots of the corresponding drug test. Totally 3 operators participated in the study of the corresponding drug test. Each of the 3 operators tests 2 aliquots at each concentration for each lot per day (2 runs/day), for a total of 50 determinations per concentration per lot of the corresponding drug test.

Drug Test	Approximate Concentration of Sample (ng/mL)	Number of Determinations per Lot	Results Negative/Positive		
			Lot 1	Lot 2	Lot 3
6-MAM	0	50	50/0	50/0	50/0
	2.5	50	50/0	50/0	50/0
	5	50	50/0	50/0	50/0
	7.5	50	47/3	48/2	47/3
	10	50	4/46	5/45	6/44
	12.5	50	3/47	2/48	2/48
	15	50	0/50	0/50	0/50
	17.5	50	0/50	0/50	0/50
	20	50	0/50	0/50	0/50
AMP (300)	0	50	50/0	50/0	50/0
	75	50	50/0	50/0	50/0
	150	50	50/0	50/0	50/0
	225	50	50/0	50/0	50/0
	300	50	5/45	5/45	4/46
	375	50	0/50	0/50	0/50
	450	50	0/50	0/50	0/50
	525	50	0/50	0/50	0/50
	600	50	0/50	0/50	0/50
AMP (500)	0	50	50/0	50/0	50/0
	125	50	50/0	50/0	50/0
	250	50	50/0	50/0	50/0
	375	50	50/0	50/0	50/0
	500	50	6/44	7/43	6/44
	625	50	0/50	0/50	0/50
	750	50	0/50	0/50	0/50
	875	50	0/50	0/50	0/50
	1000	50	0/50	0/50	0/50
AMP (1000)	0	50	50/0	50/0	50/0
	250	50	50/0	50/0	50/0
	500	50	50/0	50/0	50/0
	750	50	50/0	50/0	50/0
	1000	50	5/45	6/44	6/44
	1250	50	0/50	0/50	0/50
	1500	50	0/50	0/50	0/50
	1750	50	0/50	0/50	0/50
	2000	50	0/50	0/50	0/50
BAR	0	50	50/0	50/0	50/0
	75	50	50/0	50/0	50/0
	150	50	50/0	50/0	50/0
	225	50	50/0	50/0	50/0
	300	50	5/45	5/45	6/44
	375	50	0/50	0/50	0/50
	450	50	0/50	0/50	0/50
	525	50	0/50	0/50	0/50
	600	50	0/50	0/50	0/50
BUP (5)	0	50	50/0	50/0	50/0
	1.25	50	50/0	50/0	50/0
	2.5	50	50/0	50/0	50/0
	3.75	50	50/0	50/0	50/0
	5.0	50	5/45	5/45	6/44
	6.25	50	0/50	0/50	0/50
	7.5	50	0/50	0/50	0/50
	8.75	50	0/50	0/50	0/50
	10	50	0/50	0/50	0/50
BUP (10)	0	50	50/0	50/0	50/0
	2.5	50	50/0	50/0	50/0
	5.0	50	50/0	50/0	50/0
	7.5	50	50/0	50/0	50/0
	10.0	50	5/45	5/45	6/44
	12.5	50	0/50	0/50	0/50
	15.0	50	0/50	0/50	0/50
	17.5	50	0/50	0/50	0/50
	20.0	50	0/50	0/50	0/50
BZO (100)	0	50	50/0	50/0	50/0
	25	50	50/0	50/0	50/0
	50	50	50/0	50/0	50/0
	75	50	46/4	46/4	47/3
	100	50	4/46	4/46	4/46
	125	50	3/47	3/47	2/48
	150	50	0/50	0/50	0/50
	175	50	0/50	0/50	0/50
	200	50	0/50	0/50	0/50
BZO (200)	0	50	50/0	50/0	50/0
	50	50	50/0	50/0	50/0
	100	50	50/0	50/0	50/0
	150	50	50/0	50/0	50/0
	200	50	4/46	4/46	4/46
	250	50	0/50	0/50	0/50
	300	50	0/50	0/50	0/50
	350	50	0/50	0/50	0/50
	400	50	0/50	0/50	0/50
BZO (300)	0	50	50/0	50/0	50/0
	75	50	50/0	50/0	50/0
	150	50	50/0	50/0	50/0
	225	50	50/0	50/0	50/0
	300	50	6/44	5/45	6/44
	375	50	0/50	0/50	0/50
	450	50	0/50	0/50	0/50
	525	50	0/50	0/50	0/50
	600	50	0/50	0/50	0/50
COC (100)	0	50	50/0	50/0	50/0
	25	50	50/0	50/0	50/0
	50	50	50/0	50/0	50/0
	75	50	50/0	50/0	50/0
	100	50	4/46	4/46	3/47
	125	50	0/50	0/50	0/50
	150	50	0/50	0/50	0/50
	175	50	0/50	0/50	0/50
	200	50	0/50	0/50	0/50
COC (150)	0	50	50/0	50/0	50/0
	37.5	50	50/0	50/0	50/0
	75	50	50/0	50/0	50/0
	112.5	50	50/0	50/0	50/0
	150	50	7/43	6/44	7/43
	187.5	50	0/50	0/50	0/50
	225	50	0/50	0/50	0/50
	262.5	50	0/50	0/50	0/50
	300	50	0/50	0/50	0/50
COC (300)	0	50	50/0	50/0	50/0
	75	50	50/0	50/0	50/0
	150	50	50/0	50/0	50/0
	225	50	50/0	50/0	50/0
	300	50	6/44	5/45	5/45
	375	50	0/50	0/50	0/50
	450	50	0/50	0/50	0/50
	525	50	0/50	0/50	0/50
	600	50	0/50	0/50	0/50
COT (200)	0	50	50/0	50/0	50/0
	50	50	50/0	50/0	50/0
	100	50	50/0	50/0	50/0
	150	50	48/2	49/1	47/3
	200	50	6/44	4/46	5/45
	250	50	4/46	3/47	2/48
	300	50	0/50	0/50	0/50
	350	50	0/50	0/50	0/50
	400	50	0/50	0/50	0/50
EDDP (100)	0	50	50/0	50/0	50/0
	25	50	50/0	50/0	50/0
	50	50	50/0	50/0	50/0
	75	50	48/2	46/4	47/3
	100	50	6/44	5/45	5/45
	125	50	2/48	3/47	5/45
	150	50	0/50	0/50	0/50
	175	50	0/50	0/50	0/50
	200	50	0/50	0/50	0/50
EDDP (300)	0	50	50/0	50/0	50/0
	75	50	50/0	50/0	50/0
	150	50	50/0	50/0	50/0
	225	50	50/0	50/0	50/0
	300	50	6/44	5/45	6/44
	375	50	0/50	0/50	0/50
	450	50	0/50	0/50	0/50
	525	50	0/50	0/50	0/50
	600	50	0/50	0/50	0/50
EtG (300)	0	50	50/0	50/0	50/0
	75	50	50/0	50/0	50/0
	150	50	50/0	50/0	50/0
	225	50	50/0	50/0	50/0
	300	50	5/45	4/46	5/45
	375	50	0/50	0/50	0/50
	450	50	0/50	0/50	0/50
	525	50	0/50	0/50	0/50
	600	50	0/50	0/50	0/50
EtG (500)	0	50	50/0	50/0	50/0
	125	50	50/0	50/0	50/0
	250	50	50/0	50/0	50/0
	375	50	50/0	50/0	50/0
	500	50	5/45	4/46	5/45
	625	50	0/50	0/50	0/50
	750	50	0/50	0/50	0/50
	875	50	0/50	0/50	0/50
	1000	50	0/50	0/50	0/50
FTY	0	50	50/0	50/0	50/0
	5	50	50/0	50/0	50/0
	10	50	50/0	50/0	50/0
	15	50	50/0	50/0	50/0
	20	50	4/46	5/45	5/45
	25	50	0/50	0/50	0/50
	30	50	0/50	0/50	0/50
	35	50	0/50	0/50	0/50
	40	50	0/50	0/50	0/50
GAB	0	50	50/0	50/0	50/0
	500	50	50/0	50/0	50/0
	1000	50	50/0	50/0	50/0
	1500	50	42/8	41/9	44/6
	2000	50	26/24	23/27	28/22
	2500	50	3/47	2/48	4/46
	3000	50	0/50	0/50	0/50
	3500	50	0/50	0/50	0/50
	4000	50	0/50	0/50	0/50
HMO	0	50	50/0	50/0	50/0
	75	50	50/0	50/0	50/0
	150	50	50/0	50/0	50/0
	225	50	47/3	48/2	47/3
	300	50	5/45	3/47	4/46
	375	50	3/47	2/48	2/48
	450	50	0/50	0/50	0/50
	525	50	0/50	0/50	0/50
	600	50	0/50	0/50	0/50
K2 JWH-018 Pentanoic Acid	0	50	50/0	50/0	50/0
	12.5	50	50/0	50/0	50/0
	25.0	50	50/0	50/0	50/0
	37.5	50	50/0	50/0	50/0
	50.0	50	5/45	6/44	5/45
	62.5	50	0/50	0/50	0/50
	75.0	50	0/50	0/50	0/50
	87.5	50	0/50	0/50	0/50
	100.0	50	0/50	0/50	0/50
K2 JWH-073 Butanoic Acid	0	50	50/0	50/0	50/0
	12.5	50	50/0	50/0	50/0
	25.0	50	50/0	50/0	50/0
	37.5	50	50/0	50/0	50/0
	50.0	50	5/45	6/44	5/45
	62.5	50	0/50	0/50	0/50
	75.0	50	0/50	0/50	0/50
	87.5	50	0/50	0/50	0/50
	100.0	50	0/50	0/50	0/50
KET (300)	0	50	50/0	50/0	50/0
	75	50	50/0	50/0	50/0
	150	50	50/0	50/0	50/0
	225	50	48/2	47/3	47/3
	300	50	5/45	5/45	5/45
	375	50	2/48	1/49	3/47
	450	50	0/50	0/50	0/50
	525	50	0/50	0/50	0/50
	600	50	0/50	0/50	0/50
KET (1000)	0	50	50/0	50/0	50/0
	250	50	50/0	50/0	50/0
	500	50	50/0	50/0	50/0
	750	50	47/3	48/2	47/3
	1000	50	5/45	4/46	5/45
	1250	50	2/48	2/48	3/47
	1500	50	0/50	0/50	0/50
	1750	50	0/50	0/50	0/50
	2000	50	0/50	0/50	0/50
KRA (100)	0	50	50/0	50/0	50/0
	25	50	50/0	50/0	50/0
	50	50	50/0	50/0	50/0
	75	50	50/0	50/0	50/0
	100	50	3/47	2/48	5/45
	125	50	0/50	0/50	0/50
	150	50	0/50	0/50	0/50
	175	50	0/50	0/50	0/50
	200	50	0/50	0/50	0/50
KRA (300)	0	50	50/0	50/0	50/0
	75	50	50/0	50/0	50/0
	150	50	50/0	50/0	50/0
	225	50	50/0	50/0	50/0
	300	50	3/47	5/45	4/46
	375	50	0/50	0/50	0/50
	450	50	0/50	0/50	0/50
	525	50	0/50	0/50	0/50
	600	50	0/50	0/50	0/50
LSD	0	50	50/0	50/0	50/0
	5	50	50/0	50/0	50/0
	10	50	50/0	50/0	50/0
	15	50	40/10	45/5	42/8
	20	50	25/25	23/27	27/23
	25	50	5/45	8/42	6/44
	30	50	0/50	0/50	0/50
	35	50	0/50	0/50	0/50
	40	50	0/50	0/50	0/50
MET (mAMP) (300)	0	50	50/0	50/0	50/0
	75	50	50/0	50/0	50/0
	150	50	50/0	50/0	50/0
	225	50	50/0	50/0	50/0
	300	50	3/47	5/45	4/46
	375	50	0/50	0/50	0/50
	450	50	0/50	0/50	0/50
	525	50	0/50	0/50	0/50
	600	50	0/50	0/50	0/50
MET (mAMP) (500)	0	50	50/0	50/0	50/0
	125	50	50/0	50/0	50/0
	250	50	50/0	50/0	50/0
	375	50	50/0	50/0	50/0
	500	50	5/45	4/46	4/46
	625	50	0/50	0/50	0/50
	750	50	0/50	0/50	0/50
	875	50	0/50	0/50	0/50
	1000	50	0/50	0/50	0/50
MET (mAMP) (1000)	0	50	50/0	50/0	50/0
	250	50	50/0	50/0	50/0
	500	50	50/0	50/0	50/0
	750	50	50/0	50/0	50/0
	1000	50	5/45	6/44	4/46
	1250	50	0/50	0/50	0/50
	1500	50	0/50	0/50	0/50
	1750	50	0/50	0/50	0/50
	2000	50	0/50	0/50	0/50
MDMA	0	50	50/0	50/0	50/0
	125	50	50/0	50/0	50/0
	250	50	50/0	50/0	50/0
	375	50	50/0	50/0	50/0
	500	50	7/43	6/44	5/45
	625	50	0/50	0/50	0/50
	750	50	0/50	0/50	0/50
	875	50	0/50	0/50	0/50
	1000	50	0/50	0/50	0/50
MOP100/OPI100	0	50	50/0	50/0	50/0
	25	50	50/0	50/0	50/0
	50	50	50/0	50/0	50/0
	75	50	50/0	50/0	50/0
	100	50	4/46	4/46	5/45
	125	50	0/50	0/50	0/50
	150	50	0/50	0/50	0/50
	175	50	0/50	0/50	0/50
	200	50	0/50	0/50	0/50
MOP300/OPI300	0	50	50/0	50/0	50/0
	75	50	50/0	50/0	50/0
	150	50	50/0	50/0	50/0
	225	50	50/0	50/0	50/0
	300	50	7/43	5/45	6/44
	375	50	0/50	0/50	0/50
	450	50	0/50	0/50	0/50
	525	50	0/50	0/50	0/50
	600	50	0/50	0/50	0/50
MTD (200)	0	50	50/0	50/0	50/0
	50	50	50/0	50/0	50/0
	100	50	50/0	50/0	50/0
	150	50	50/0	50/0	50/0
	200	50	5/45	6/44	4/46
	250	50	0/50	0/50	0/50
	300	50	0/50	0/50	0/50
	350	50	0/50	0/50	0/50
	400	50	0/50	0/50	0/50
MTD (300)	0	50	50/0	50/0	50/0
	75	50	50/0	50/0	50/0
	150	50	50/0	50/0	50/0
	225	50	50/0	50/0	50/0
	300	50	5/45	7/43	5/45
	375	50	0/50	0/50	0/50
	450	50	0/50	0/50	0/50
	525	50	0/50	0/50	0/50
	600	50	0/50	0/50	0/50
MQL	0	50	50/0	50/0	50/0
	75	50	50/0	50/0	50/0
	150	50	50/0	50/0	50/0
	225	50	48/2	49/1	47/3
	300	50	6/44	4/46	5/45
	375	50	4/46	3/47	2/48
	450	50	0/50	0/50	0/50
	525	50	0/50	0/50	0/50
	600	50	0/50	0/50	0/50
OPI2000	0	50	50/0	50/0	50/0
	500	50	50/0	50/0	50/0
	1000	50	50/0	50/0	50/0
	1500	50	50/0	50/0	50/0
	2000	50	5/45	5/45	6/44
	2500	50	0/50	0/50	0/50
	3000	50	0/50	0/50	0/50
	3500	50	0/50	0/50	0/50
	4000	50	0/50	0/50	0/50
OXY	0	50	50/0	50/0	50/0
	25	50	50/0	50/0	50/0
	50	50	50/0	50/0	50/0
	75	50	50/0	50/0	50/0
	100	50	4/46	4/46	5/45
	125	50	0/50	0/50	0/50
	150	50	0/50	0/50	0/50
	175	50	0/50	0/50	0/50
	200	50	0/50	0/50	0/50
PCP	0	50	50/0	50/0	50/0
	6.25	50	50/0	50/0	50/0
	12.5	50	50/0	50/0	50/0
	18.75	50	50/0	50/0	50/0
	25	50	6/44	4/46	5/45
	31.25	50	0/50	0/50	0/50
	37.5	50	0/50	0/50	0/50
	43.75	50	0/50	0/50	0/50
	50	50	0/50	0/50	0/50
PGB	0	50	50/0	50/0	50/0
	125	50	50/0	50/0	50/0
	250	50	50/0	50/0	50/0
	375	50	46/4	48/2	46/4
	500	50	4/46	5/45	5/45
	625	50	3/47	2/48	4/46
	750	50	0/50	0/50	0/50
	875	50	0/50	0/50	0/50
	1000	50	0/50	0/50	0/50
PPX	0	50	50/0	50/0	50/0
	75	50	50/0	50/0	50/0
	150	50	50/0	50/0	50/0
	225	50	50/0	50/0	50/0
	300	50	6/44	5/45	5/45
	375	50	0/50	0/50	0/50
	450	50	0/50	0/50	0/50
	525	50	0/50	0/50	0/50
	600	50	0/50	0/50	0/50
TCA	0	50	50/0	50/0	50/0
	250	50	50/0	50/0	50/0
	500	50	50/0	50/0	50/0
	750	50	50/0	50/0	50/0
	1000	50	6/44	5/45	4/46
	1250	50	0/50	0/50	0/50
	1500	50	0/50	0/50	0/50
	1750	50	0/50	0/50	0/50
	2000	50	0/50	0/50	0/50
THC (15)	0	50	50/0	50/0	50/0
	3.75	50	50/0	50/0	50/0
	7.5	50	50/0	50/0	50/0
	11.25	50	44/6	49/1	43/7
	15	50	21/29	24/26	23/27
	18.75	50	2/48	2/48	1/49
	22.5	50	0/50	0/50	0/50
	26.25	50	0/50	0/50	0/50
	30	50	0/50	0/50	0/50
THC (25)	0	50	50/0	50/0	50/0
	6.25	50	50/0	50/0	50/0
	12.5	50	50/0	50/0	50/0
	18.75	50	50/0	48/2	47/3
	25	50	5/45	5/45	3/47
	31.25	50	2/48	3/47	1/49
	37.5	50	0/50	0/50	0/50
	43.75	50	0/50	0/50	0/50
	50	50	0/50	0/50	0/50
THC (40)	0	50	50/0	50/0	50/0
	10	50	50/0	50/0	50/0
	20	50	50/0	50/0	50/0
	30	50	50/0	50/0	50/0
	40	50	5/45	5/45	3/47
	50	50	0/50	0/50	0/50
	60	50	0/50	0/50	0/50
	70	50	0/50	0/50	0/50
	80	50	0/50	0/50	0/50
THC (50)	0	50	50/0	50/0	50/0
	12.5	50	50/0	50/0	50/0
	25.0	50	50/0	50/0	50/0
	37.5	50	50/0	50/0	50/0
	50.0	50	4/46	4/46	5/45
	62.5	50	0/50	0/50	0/50
	75.0	50	0/50	0/50	0/50
	87.5	50	0/50	0/50	0/50
	100.0	50	0/50	0/50	0/50
TRA (100)	0	50	50/0	50/0	50/0
	25	50	50/0	50/0	50/0
	50	50	50/0	50/0	50/0
	75	50	48/2	49/1	47/3
	100	50	4/46	5/45	5/45
	125	50	1/49	4/46	3/47
	150	50	0/50	0/50	0/50
	175	50	0/50	0/50	0/50
	200	50	0/50	0/50	0/50
TRA (200)	0	50	50/0	50/0	50/0
	50	50	50/0	50/0	50/0
	100	50	50/0	50/0	50/0
	150	50	50/0	50/0	50/0
	200	50	4/46	6/44	5/45
	250	50	0/50	0/50	0/50
	300	50	0/50	0/50	0/50
	350	50	0/50	0/50	0/50
	400	50	0/50	0/50	0/50
TRA (1000)	0	50	50/0	50/0	50/0
	250	50	50/0	50/0	50/0
	500	50	50/0	50/0	50/0
	750	50	50/0	49/1	49/1
	1000	50	4/46	5/45	5/45
	1250	50	2/48	3/47	2/48
	1500	50	0/50	0/50	0/50
	1750	50	0/50	0/50	0/50
	2000	50	0/50	0/50	0/50

Specificity and Cross Reactivity

To test the specificity of the test, the test device was used to test various drugs, drug metabolites and other components of the same class that are likely to be present in urine. All the components were added to drug-free normal human urine. The following structurally related compounds produced positive results with the test when tested at levels equal to or greater than the concentrations listed below.

Items	Concentration (ng/mL)	Items	Concentration (ng/mL)
6-Monoacetylmorphine (6-MAM)		JWH-073 3-Hydroxybutyl metabolite	1,000
6-Monoacetylmorphine	10	JWH-073 3-Hydroxybutyl metabolite-D5 (indole-D5)	1,000
Codeine	10,000	JWH-019 6-hydroxypentyl	1,000
Ethyl morphine	>100,000	JWH-122 N-4-hydroxypentyl	2,000
Hydrocodone	1,0000	JWH-210 5-Hydroxypentyl metabolite	5,000
Naltrexone	10,000	AM2201 4-Hydroxypentyl metabolite	1,000
Naloxone	1,0000	**Ketamine (KET300)**	
Thebaine	1,00000	Ketamine	300
Pholcodine	>100,000	Methadone	15,000
Oxycodone	>10,0000	Pethidine	3,750
Hydromorphone	10000	Methylamphetamine	3,750
Levorphanol	>10,0000	Methoxyphenamine	3,750
morphine	50,000	Promethazine	7,500
Amphetamine (AMP300)		Phencyclidine	7,500
d-Amphetamine	300	**Ketamine (KET1000)**	
l-Amphetamine	17,500	Ketamine	1,000
d,l-Amphetamine	850	Methadone	50,000
(+/-) 3,4-methylenedioxyamphetamine (MDA)	1,000	Pethidine	12,500
Phentermine	1,000	Methylamphetamine	12,500
β-Phenylethylamine	100,000	Methoxyphenamine	12,500
Tyramine	100,000	Promethazine	25,000
p-Hydroxynorephedrine	100,000	Phencyclidine	25,000
Phenylpropanolamine	>100,000	**Kratom (KRA100)**	
(±)Phenylpropanolamine	>100,000	Mitragynine	100
p-Hydroxyamphetamine	100,000	7-Hydroxymitragynine	5,000
d,l-Norephedrine	100,000	**Kratom (KRA300)**	
d-Methamphetamine	>100,000	Mitragynine	300
l-Methamphetamine	>100,000	7-Hydroxymitragynine	600
(+/-) 3,4-Methylenedioxyethylamphetamine (MDEA)	>100,000	**Lysergic acid diethylamide (LSD)**	
(+/-)3,4-Methylenedioxymethamphetamine (MDMA)	>100,000	Lysergic acid diethylamide	20
Benzphetamine	>100,000	Fentanyl citrate	5
Ephedrine	>100,000	Haloperidol	200
l-Ephedrine	>100,000	Paliperidone	1,000
l-Epinephrine	>100,000	Risperidone	5,000
d,l-Epinephrine	>100,000	Phenibut	10,000
Amphetamine (AMP500)		Orthoxine	10,000
d-Amphetamine	500	**Methamphetamine (MET300/mAMP300)**	
l-Amphetamine	25,000	D(+)-Methamphetamine	300
d,l-Amphetamine	1,500	D-Amphetamine	40,000
(+/-) 3,4-methylenedioxyamphetamine (MDA)	2,500	Chloroquine	8,000
Phentermine	1,500	(+/-)-Ephedrine	20,000
Hydroxyamphetamine	8,000	(-)-Methamphetamine	8,000
d-Methamphetamine	>100,000	(+/-) 3,4-Methylenedioxymethamphetamine (MDMA)	800
l-Methamphetamine	>100,000	β-Phenylethylamine	10,000
(+/-) 3,4-Methylenedioxyethylamphetamine (MDEA)	>100,000	Trimethobenzamide	3,000
(+/-) 3,4-Methylenedioxymethamphetamine (MDMA)	>100,000	**Methamphetamine (MET500/mAMP500)**	
Ephedrine	>100,000	D(+)-Methamphetamine	500
Amphetamine (AMP1000)		D-Amphetamine	25,000
d-Amphetamine	1,000	L-Amphetamine	37,500
d,l-Amphetamine	3,000	Chloroquine	10,000
l-Amphetamine	50,000	(+/-)-Ephedrine	25,000
(+/-)3,4-methylenedioxyamphetamine (MDA)	5,000	d,l-Methamphetamine	500
Phentermine	3,000	L-Methamphetamine	10,000
Phenylpropanolamine	3,000	(+/-) 3,4-Methylenedioxyethylamphetamine (MDEA)	500
d-methamphetamine	>100,000	(+/-) 3,4-Methylenedioxyamphetamine (MDA)	500
l-methamphetamine	>100,000	(+/-) 3,4-Methylenedioxymethamphetamine (MDMA)	1,000
3,4-Methylenedioxyethylamphetamine (MDEA)	100,000	β-Phenylethylamine	25,000
(+/-) 3,4-Methylenedioxymethamphetamine (MDMA)	100,000	Trimethobenzamide	5,000
Barbiturates (BAR300)		d,l-Amphetamine	75,000
Secobarbital	300	p-Hydroxymethamphetamine	15,000
Amobarbital	300	Mephentermine	25,000
Alphenol	150	(1R,2S)-(-)-Ephedrine	50,000
Aprobarbital	200	l-Phenylephrine	100,000
Butabarbital	75	**Methamphetamine (MET1000/mAMP1000)**	
Butathal	100	D(+)-Methamphetamine	1,000
Butalbital	2,500	D-Amphetamine	50,000
Cyclopentobarbital	600	Chloroquine	50,000
Pentobarbital	300	(+/-)-Ephedrine	50,000
Phenobarbital	100	(-)-Methamphetamine	25,000
Benzodiazepines (BZO100)		(+/-)3,4-methylenedioxymethamphetamine (MDMA)	2,000
Oxazepam	100	β-Phenylethylamine	50,000
Alprazolam	75	Trimethobenzamide	10,000
a-Hydroxyalprazolam	500	**Methylenedioxymethamphetamine (MDMA)**	
Bromazepam	400	3,4-Methylenedioxymethamphetamine (MDMA)	500
Chlordiazepoxide	500	3,4-Methylenedioxyamphetamine (MDA)	3,000
Clobazam	50	3,4-Methylenedioxyethylamphetamine (MDEA)	300
Clonazepam	800	**Morphine (MOP100/OPI100)**	
Clorazepate dipotassium	75	Morphine	100
Delorazepam	500	Codeine	100
Desalkylflurazepam	150	Ethyl Morphine	200
Diazepam	75	Hydrocodone	400
Estazolam	800	Hydromorphone	2,000
Flunitrazepam	1,800	Levorphanol	5,000
D,L-Lorazepam	>100,000	6-Monoacetylmorphine	200
Midazolam	4,200	Morphine 3-β-D-glucuronide	200
Nitrazepam	3,000	Norcodeine	500
Norchlordiazepoxide	75	Normorphine	5,000
Nordiazepam	300	Oxycodone	1000
Temazepam	150	Oxymorphone	10,000
Trazolam	800	Procaine	100,000
Demoxepam	1,500	Thebaine	5,000
Flurazepam	400	**Morphine (MOP300/OPI300)**	
Benzodiazepines (BZO200)		Morphine	300
Oxazepam	200	Codeine	300
Alprazolam	50	Ethyl Morphine	300
a-Hydroxyalprazolam	500	Heroin	300
Bromazepam	500	Hydrocodone	5,000
Chlordiazepoxide	800	Hydromorphone	5,000
Clobazam	50	Morphine-3-β-d-glucuronide	1,000
Clonazepam	>100,000	6-Monoacetylmorphine	400
Clorazepate dipotassium	50	Normorphine	10,000
Delorazepam	500	Oxycodone	25,000
Desalkylflurazepam	200	Oxymorphone	10,000
Diazepam	50	Thebaine	30,000
Estazolam	1,000	**Methadone (MTD200)**	
Flunitrazepam	200	Methadone	200
D,L-Lorazepam	800	Doxylamine	40,000
Midazolam	5,000	**Methadone (MTD300)**	
Nitrazepam	50	Methadone	300
Norchlordiazepoxide	100	Doxylamine	50,000
Nordiazepam	200	**Methaqualone (MQL)**	
Temazepam	50	Methaqualone	300
Triazolam	500	**Opiate (OPI2000)**	
Benzodiazepines (BZO300)		Morphine	2,000
Oxazepam	300	Codeine	2,000
Alprazolam	200	Ethyl Morphine	5,000
a-Hydroxyalprazolam	1,500	Heroin	2,000
Bromazepam	1,500	Hydrocodone	12,500
Chlordiazepoxide	1,500	Hydromorphone	5,000
Clobazam	100	Levorphanol	75,000
Clonazepam	>100,000	6-Monoacetylmorphine	5,000
Clorazepate dipotassium	200	Morphine 3-β-D-glucuronide	2,000
Delorazepam	1,500	Norcodeine	12,500
Desalkylflurazepam	400	Normorphine	50,000
Diazepam	200	Oxycodone	25,000
Estazolam	2,500	Oxymorphone	25,000
Flunitrazepam	400	Procaine	150,000
D,L-Lorazepam	1500	Thebaine	100,000
Midazolam	12,500	**Oxycodone (OXY)**	
Nitrazepam	100	Oxycodone	100
Norchlordiazepoxide	200	Dihydrocodeine	20,000
Nordiazepam	400	Codeine	100,000
Temazepam	100	Hydromorphone	100,000
Triazolam	2,500	Morphine	>100,000
Buprenorphine (BUP5)		Acetylmorphine	>100,000
Buprenorphine	5	Buprenorphine	>100,000
Buprenorphine -3-D-Glucuronide	10	Ethylmorphine	>100,000
Norbuprenorphine	15	**Phencyclidine (PCP)**	
Norbuprenorphine 3-D-Glucuronide	100	Phencyclidine	25
Buprenorphine (BUP10)		4-Hydroxyphencyclidine	12,500
Buprenorphine	10	**Pregabalin (PGB)**	
Buprenorphine -3-D-Glucuronide	15	Pregabalin	500
Norbuprenorphine	20	Vigabatrin	>100,000
Norbuprenorphine 3-D-Glucuronide	200	Gabapentin	>100,000
Cocaine (COC100)		Phenibut	100,000
Benzoylecgonine	100	**Propoxyphene (PPX)**	
Cocaine	250	d-Propoxyphene	300
Cocaethylene	4,000	d-Norpropoxyphene	300
Ecgonine	10,000	**Nortriptyline (TCA)**	
Cocaine (COC150)		Nortriptyline	1,000
Benzoylecgonine	150	Nordoxepin	1,000
Cocaine	375	Trimipramine	3,000
Cocaethylene	6,250	Amitriptyline	1,500
Ecgonine	16,000	Promazine	1,500
Norcocaine	50,000	Desipramine	200
Cocaine (COC300)		Imipramine	400
Benzoylecgonine	300	Clomipramine	12,500
Cocaine	750	Doxepin	2,000
Cocaethylene	12,500	Maprotiline	2,000
Ecgonine	32,000	Promethazine	25,000
Cotinine (COT)		**Cannabinoids (THC15)**	
Cotinine	200	11-nor-Δ9-THC-9-COOH	15
EDDP100		11-hydroxy-Δ9-Tetrahydrocannabinol	25,000
2-ethylidene-1,5-dimethyl-3,3-diphenylpyrrolidine	100	Δ8-Tetrahydrocannabinol	25,000
Methadone	100,000	Δ9-Tetrahydrocannabinol	25,000
EMDP	100,000	Cannabinol	25,000
EDDP300		Cannabidiol	50,000
2-ethylidene-1,5-dimethyl-3,3-diphenylpyrrolidine	300	**Cannabinoids (THC25)**	
Methadone	300,000	11-nor-Δ9-THC-9-COOH	25
EMDP	300,000	11-nor-Δ8-THC-9-COOH	15
Ethyl Glucuronide (EtG300)		11-hydroxy-Δ9-Tetrahydrocannabinol	1,250
Ethyl Glucuronide	300	Δ8-Tetrahydrocannabinol	3,750
Ethyl Glucuronide (EtG500)		Δ9-Tetrahydrocannabinol	5,000
Ethyl Glucuronide	500	Cannabinol	50,000
Fentanyl (FTY)		Cannabidiol	50,000
Norfentanyl	20	**Cannabinoids (THC40)**	
Fentanyl	200	11-nor-Δ9-THC-9-COOH	40
Gabapentin (GAB)		11-nor-Δ8-THC-9-COOH	20
Gabapentin	2,000	11-hydroxy-Δ9-Tetrahydrocannabinol	2,000
Pregabalin	90,000	Δ8-Tetrahydrocannabinol	6,000
Vigabatrin	>100,000	Δ9-Tetrahydrocannabinol	8,000
Hydromorphone (HMO)		Cannabinol	80,000
Hydromorphone	300	Cannabidiol	80,000
Thebaine	90000	**Cannabinoids (THC50)**	
Buprenophine	>100,000	11-nor-Δ9-THC-9-COOH	50
Morphine	50000	11-nor-Δ8-THC-9-COOH	30
Codeine	5000	11-hydroxy-Δ9-Tetrahydrocannabinol	2,500
6-Acetylmorphine	>100,000	Δ8-Tetrahydrocannabinol	7,500
Morphine-3-beta-D-glucuromide	>100,000	Δ9-Tetrahydrocannabinol	10,000
Hydromorphone-3-beta-D-glucuronide	>100,000	Cannabinol	100,000
Oxycodone	10000	Cannabidiol	100,000
Norhydromorphone HCl	100,000	**Tramadol (TRA100)**	
Hydrocodone	100	Tramadol	100
Naloxone hydrochloride	>100,000	**Tramadol (TRA200)**	
Synthetic Cannabinoids (K2)		Tramadol	200
JWH-018 Pentanoic Acid	50	**Tramadol (TRA1000)**	
JWH-073 Butanoic Acid	50	Tramadol	1,000
JWH-018 N-4-hydroxypentyl	2,000		
JWH-018 (Spice Cannabinoid)	1,000		
JWH-018 4-Hydroxypentyl metabolite-D5 (indole-D5)	1,000		
JWH-073 (Spice Cannabinoid)	2,000		

Effect of Urinary Specific Gravity

The results demonstrate that the urinary specific gravity range of 1.000~1.035 does not affect the test results.

Effect of Urinary pH

The results demonstrate that the range of urinary pH from 4 to 9 does not interfere with the performance of test.

Interfering Substances

Urine specimens may contain substances that could potentially interfere with the test. The following compounds were added to drug-free urine, urine with a drug concentration 25% below the cutoff, and urine with a drug concentration 25% above the cutoff for the corresponding drug test. All potential interferents were added at a concentration of 100 μg/mL. None of the urine samples tested showed any deviation from the expected results.

Acetaminophen	Estrogen	D,L-Tyrosine
Acetophenetidin	Fenoprofen	D-Pseudoephedrine
Acetylsalicylic Acid	Furosemide	Noscapine
Aminopyrine	Gentisic Acid	O-Hydroxyhippuric Acid

Amoxicillin	Hydrochlorothiazide	Omeprazole
Ampicillin	3-Hydroxytyramine	Oxalic Acid
Apomorphine	Hydrocortisone	Oxolinic Acid
Aspartame	Isoxsuprine	Oxymetazoline
Aspirin	Ketoprofen	Papaverine
Atropine	Labetalol	Penicillin V Potassium
Benzilic Acid	Lamotrigine	Penicillin-G
Benzoic Acid	Levonorgestrel	Perphenazine
Bilirubin	Meperidine	Pethidine HCl
Captopril	Meprobamate	Phenelzine
Chloralhydrate	Nalidixic Acid	Prednisone
Chloramphenicol	Naproxen	Propranolol HCl
Chlorothiazide	Niacinamide	Quinine
Chlorpromazine	Nifedipine	Ranitidine
Chloroquine	Nitroglycerin	Ranitidine HCl
Cholesterol	Norethindrone	Salicylic Acid
Clarithromycin	5- Hydroxytyramine	Triamterene
Clonidine	Sulfamethazine Sulindac	Uric Acid
Cortisone	Tetrahydrozoline	Venlafaxine HCl
Deoxycorticosterone	Thiamine	Verapamil
Dextromethorphan	Thioridazine	Sertraline
Diclofenac	Diphenhydramine	Zomepirac
Diflunisal	D,L-Octopamine	
Digoxin	D,L-Propranolol	

ALCOHOL TEST:

Sensitivity

It is designed for detection of alcohol in urine at the detection sensitivity of 40 mg/dL (0.04 g/dL)

Interference

The following substances were added to samples which had alcohol levels of 0 and 0.08%. None of the substances at the concentrations tested interfered in the Alcohol Tests.

Acetaminophen	20 mg/dL
Caffeine	20 mg/dL
Glucose	2,000 mg/dL
Hemoglobin	1 mg/dL
Human Serum Protein	2,000 mg/dL

The following substances may interfere with the Alcohol Test:

Strong oxidizers	Ascorbic acid
Tannic acid	Polyphenolic compounds
Mercaptans	Uric acid
Bilirubin	Oxalic acid

These compounds are not normally present in sufficient amounts in urine to interfere with the test.

ASSISTANCE

If you have any question regarding to the use of this product, please call our Toll Free Number 1-888-444-3657(9:00 a.m. to 5:30 p.m. CDT M-F).

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ADDITIONAL INFORMATION AND RESOURCES

The following list of organizations may be helpful to you for counseling support and resources. These groups also have an Internet address which can be accessed for additional information.
Drug & Alcohol Clearinghouse https://clearinghouse.fmcsa.dot.gov/ 1-800-832-5660
Center for Substance Abuse Treatment https://www.samhsa.gov/about-us/who-we-are/oces-centers/csat 1-800-662-HELP
The National Council on Alcoholism and Drug Dependence www.ncadd.org 1-800-NCA-CALL
American Council for Drug Education (ACDE) www.acde.org 1-800-488-DRUG

INDEX OF SYMBOLS

Keep away from sunlight
Store between 39°F-86°F (4°C-30°C)
Keep dry
Do not re-use

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